TRANSACTIONS

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and
OTOLARYNGOLOGY

NOVEMBER - DECEMBER
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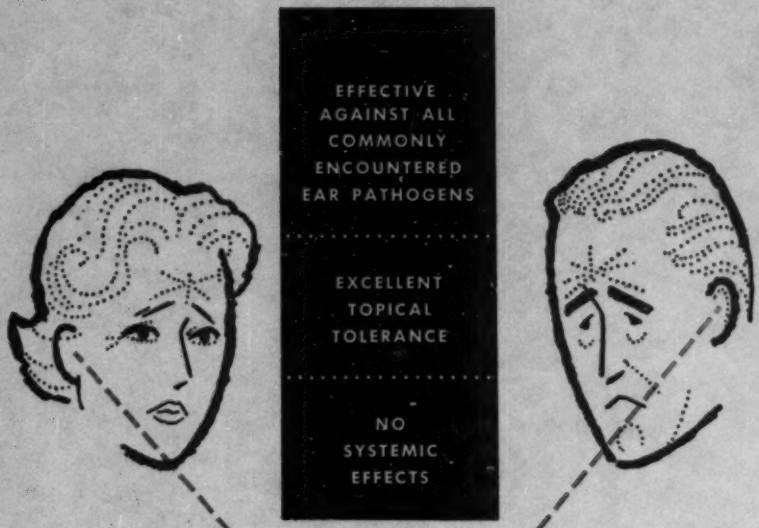

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American Academy of Ophthalmology and Otolaryngology

VOLUME 63 NOVEMBER - DECEMBER, 1959 NUMBER 6

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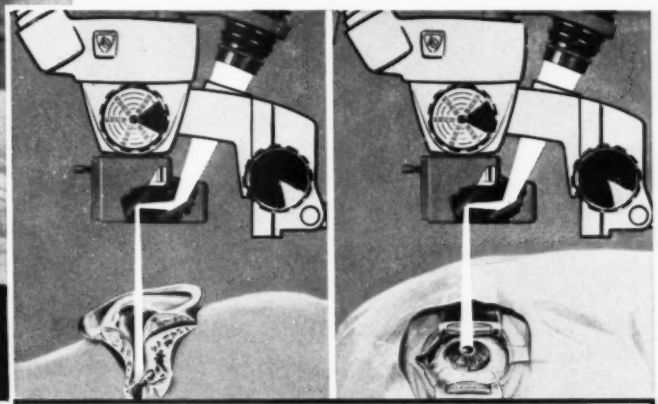

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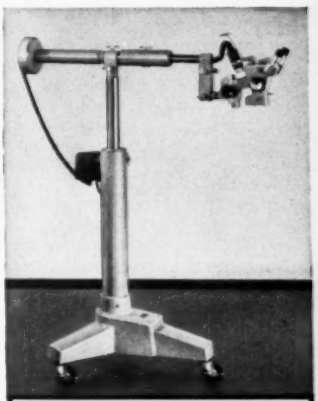

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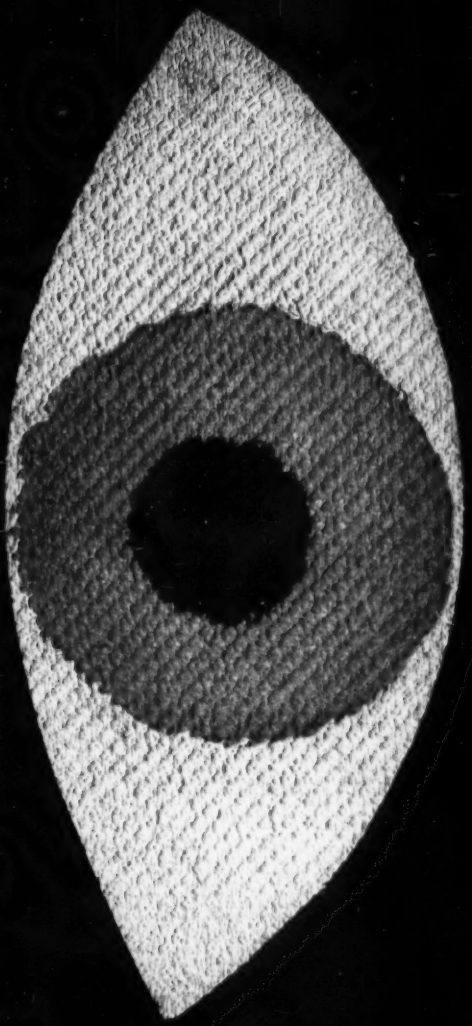
References: (1) Perkins, E. S.: **Practitioner 178**:575, 1957. (2) Queries and Minor Notes, **J.A.M.A. 161**:1032, 1956. (3) Smith, C. H.: **Eye, Ear, Nose & Throat Month. 34**:580, 1955. (4) Blakiston's New Gould Medical Dictionary, ed. 2, New York, McGraw-Hill Book Company, Inc., 1956, p. 945. (5) Ostler, H. B., & Braley, A. E.: **J. Iowa M. Soc. 44**:427, 1954.



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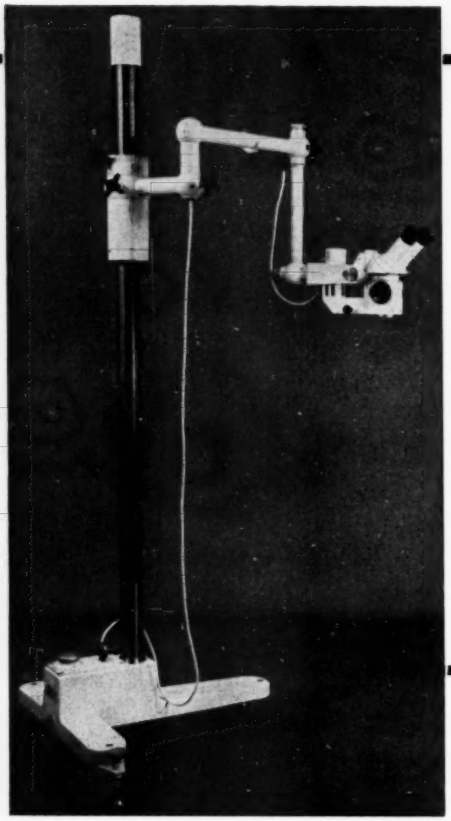

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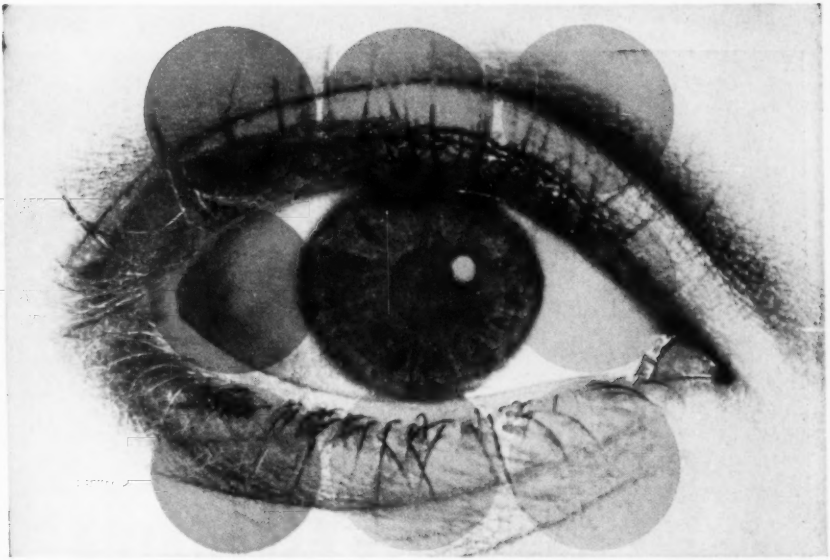

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1. New and Nonofficial Drugs; J. B. Lippincott Company, Philadelphia, 1958, p. 243.

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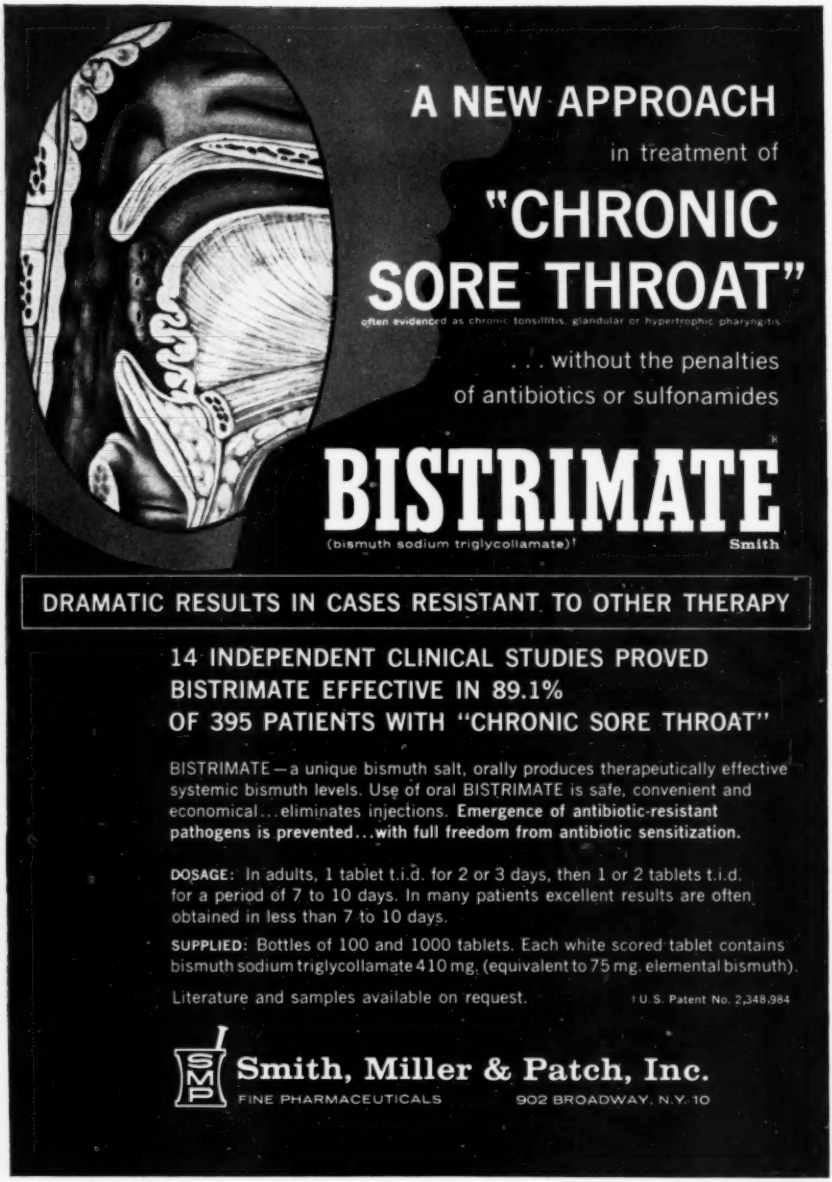
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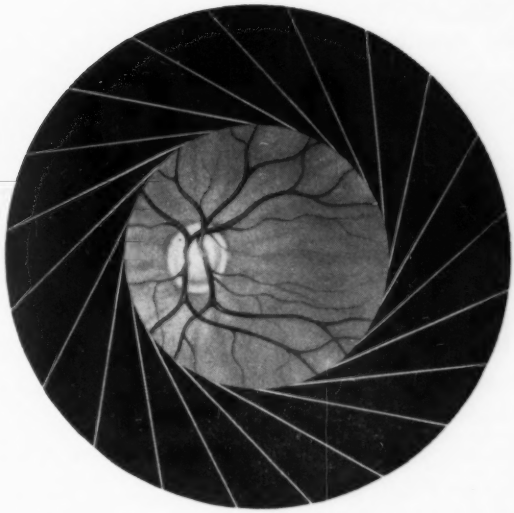

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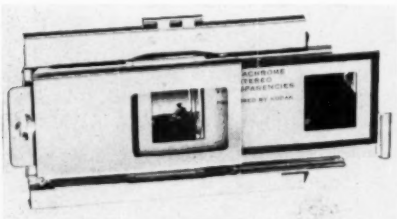

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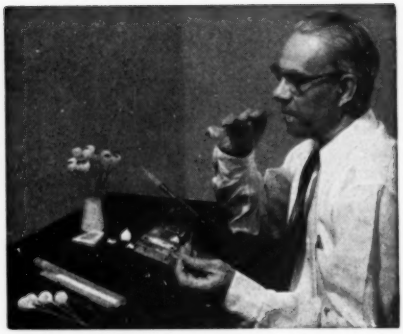

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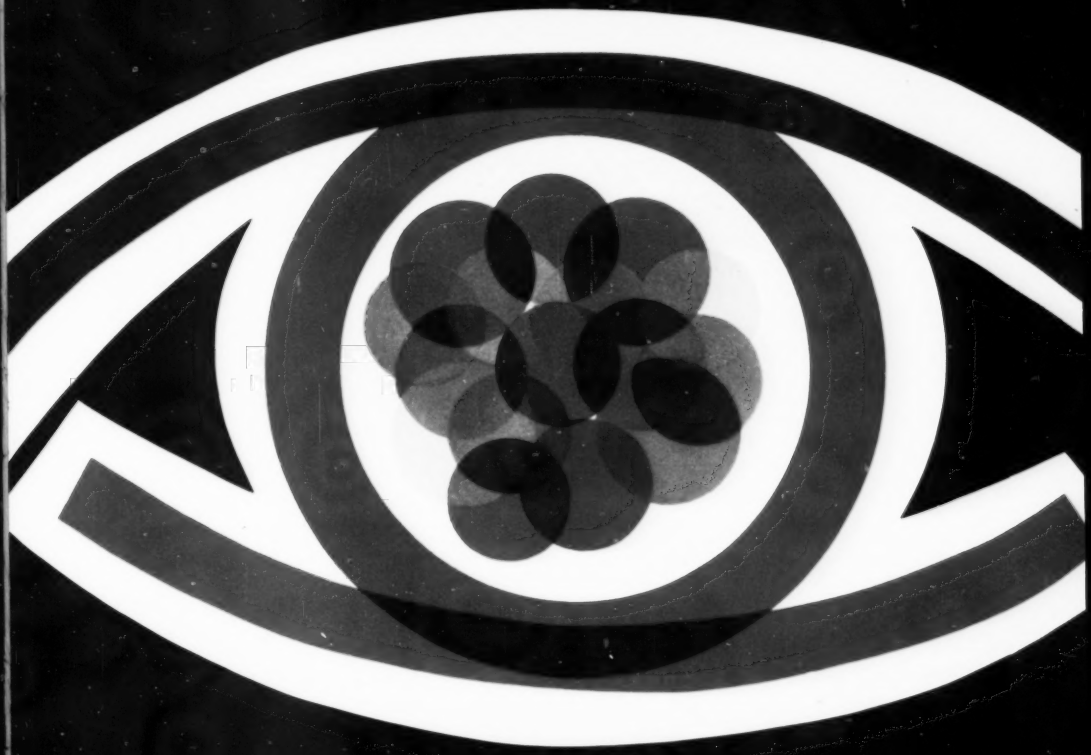

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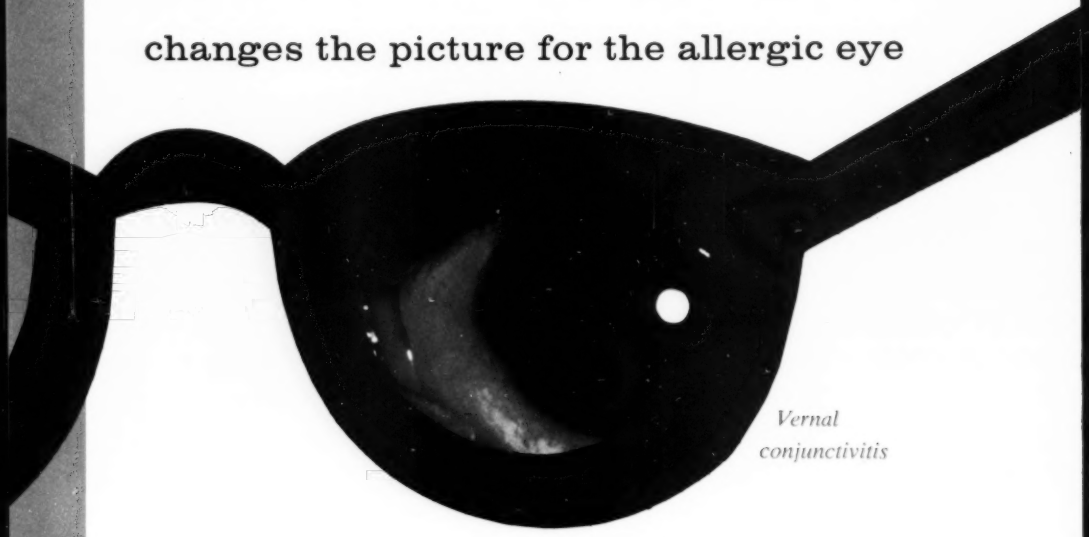

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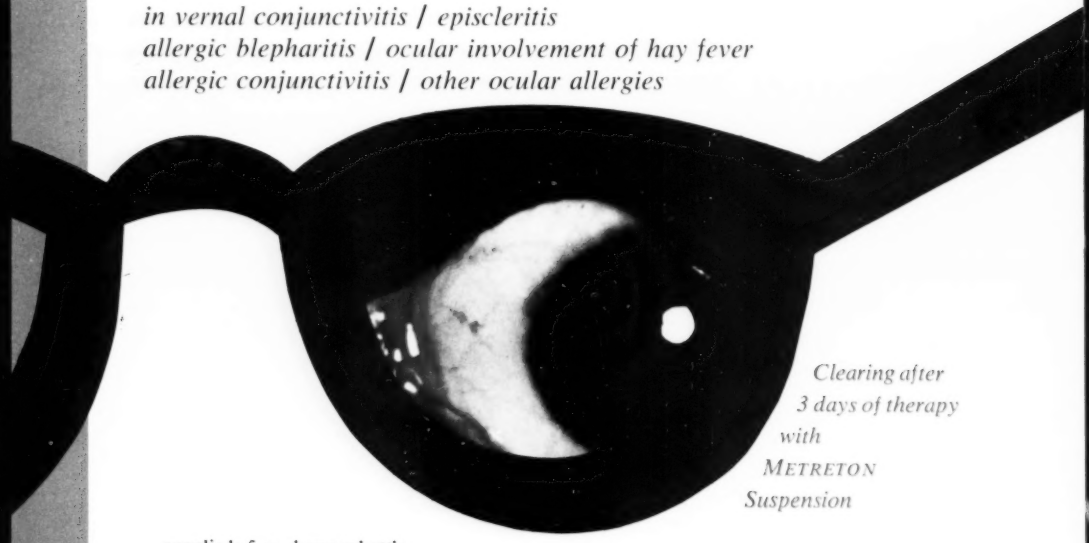

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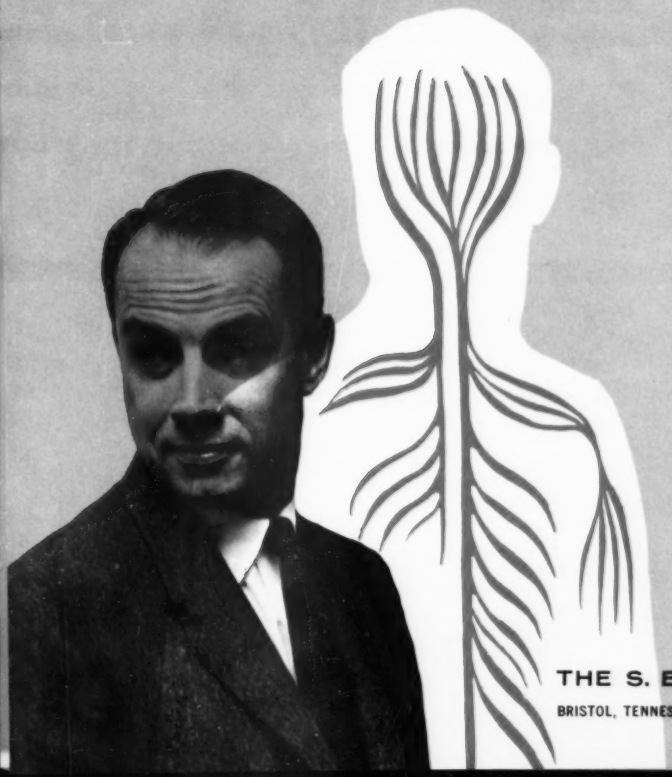

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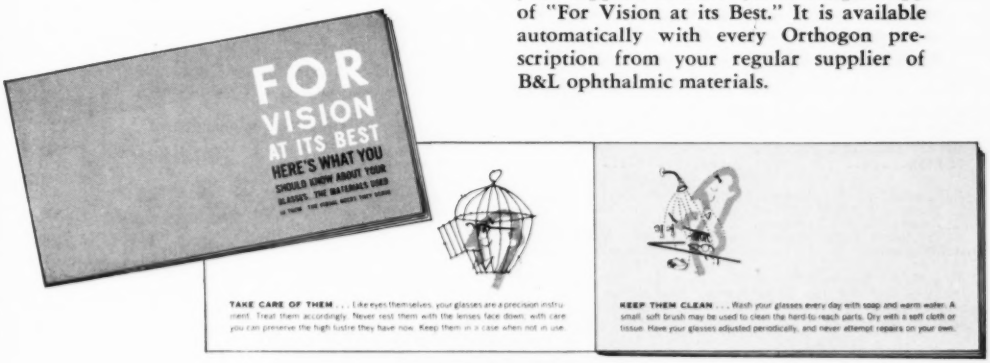
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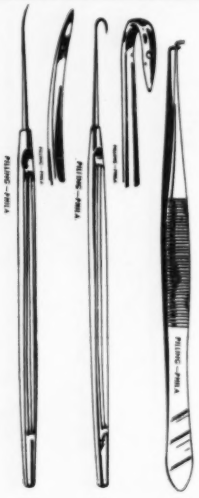

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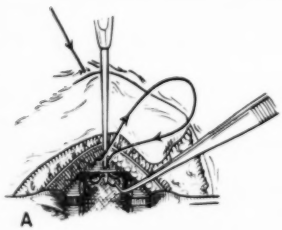
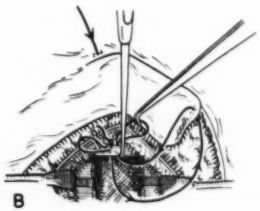


A



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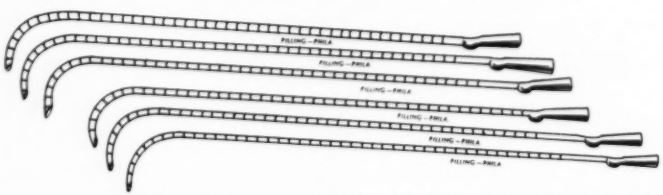

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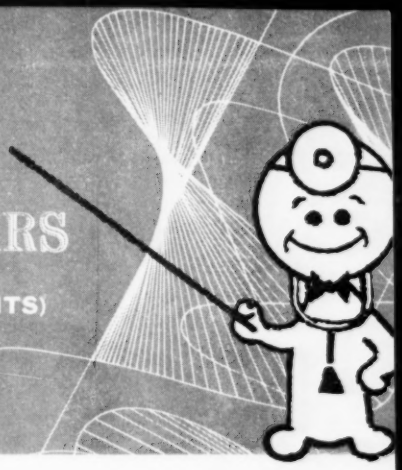

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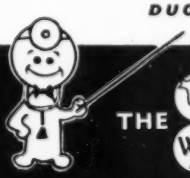

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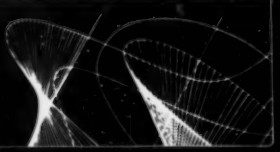

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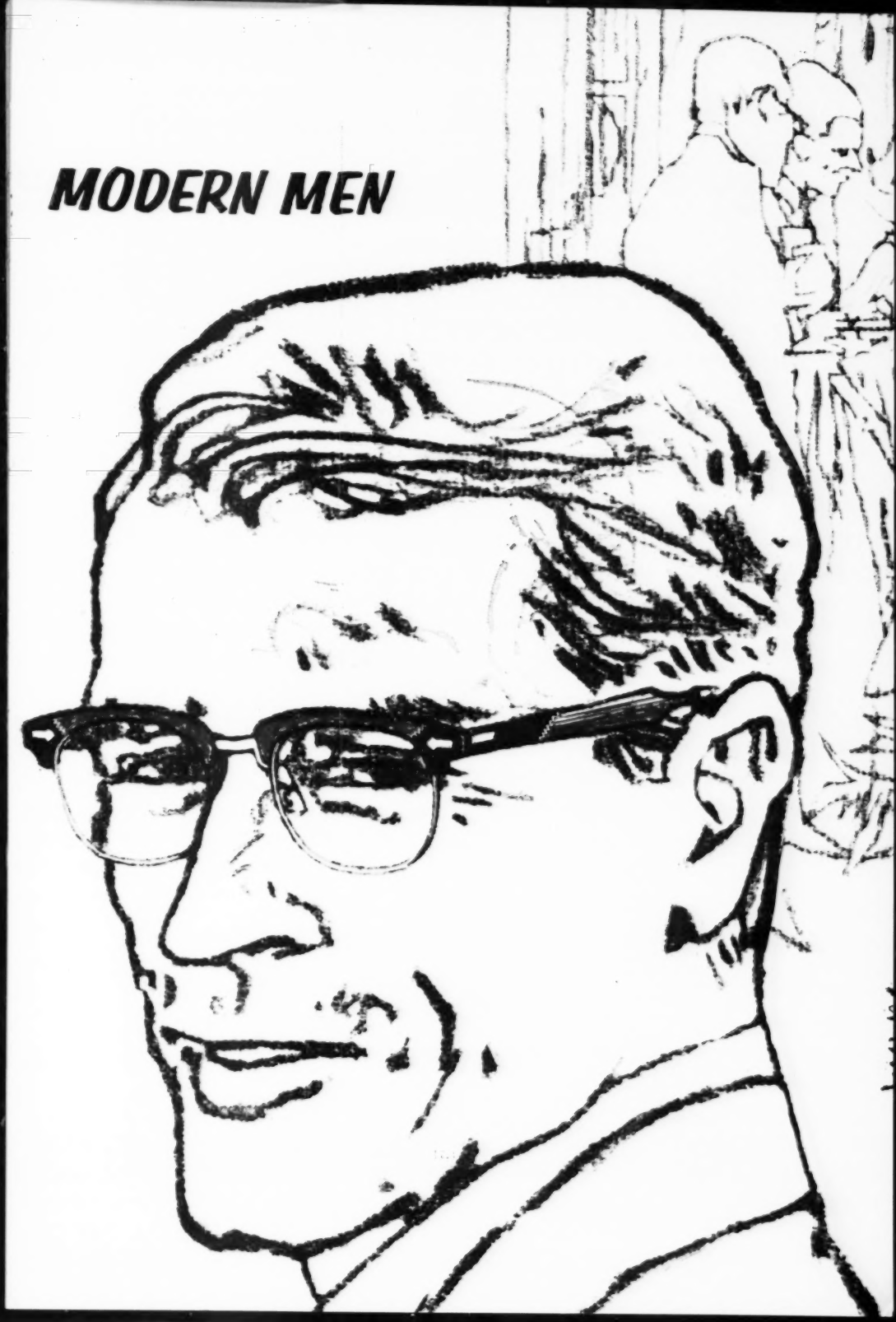

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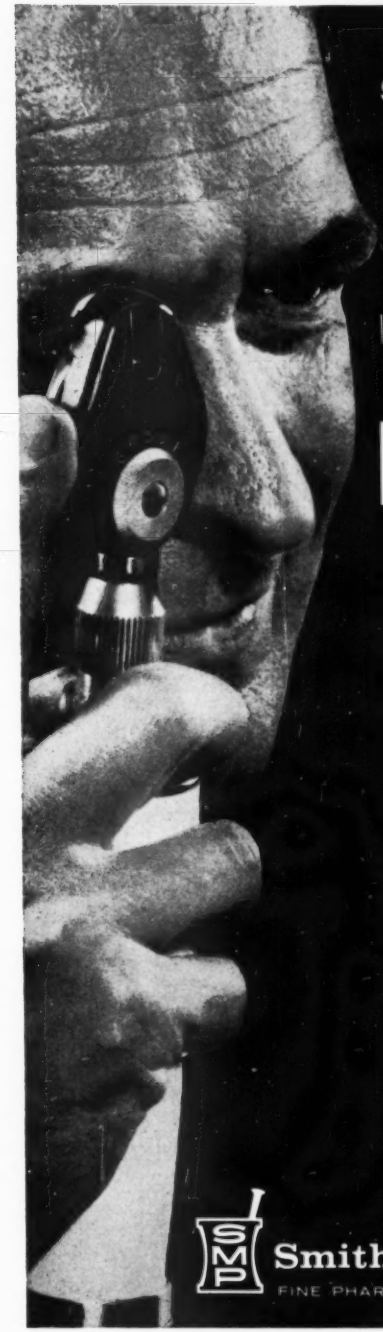

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1. Hilgartner, H. L.: Texas J. Med. 51:733 (Nov.) 1955. 2. Stallenger, E. H. Personal communication. 3. Swets, E. J. and Van Bergen, T. M. Personal communication. 4. Alexander, J. E. Personal communication. 5. Hilgartner, H. L.: Eye, Ear, Nose & Throat Month. 38:842 (Oct.) 1959. 6. Keeney, A. H. and Jain, M.: Tr. Am. Ophth. Soc. 56:247, 1958.

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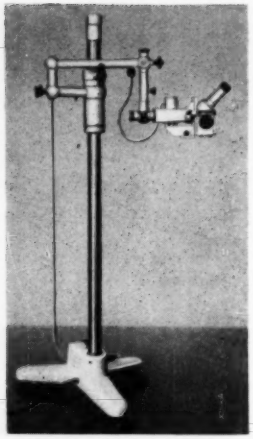

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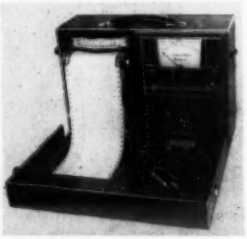

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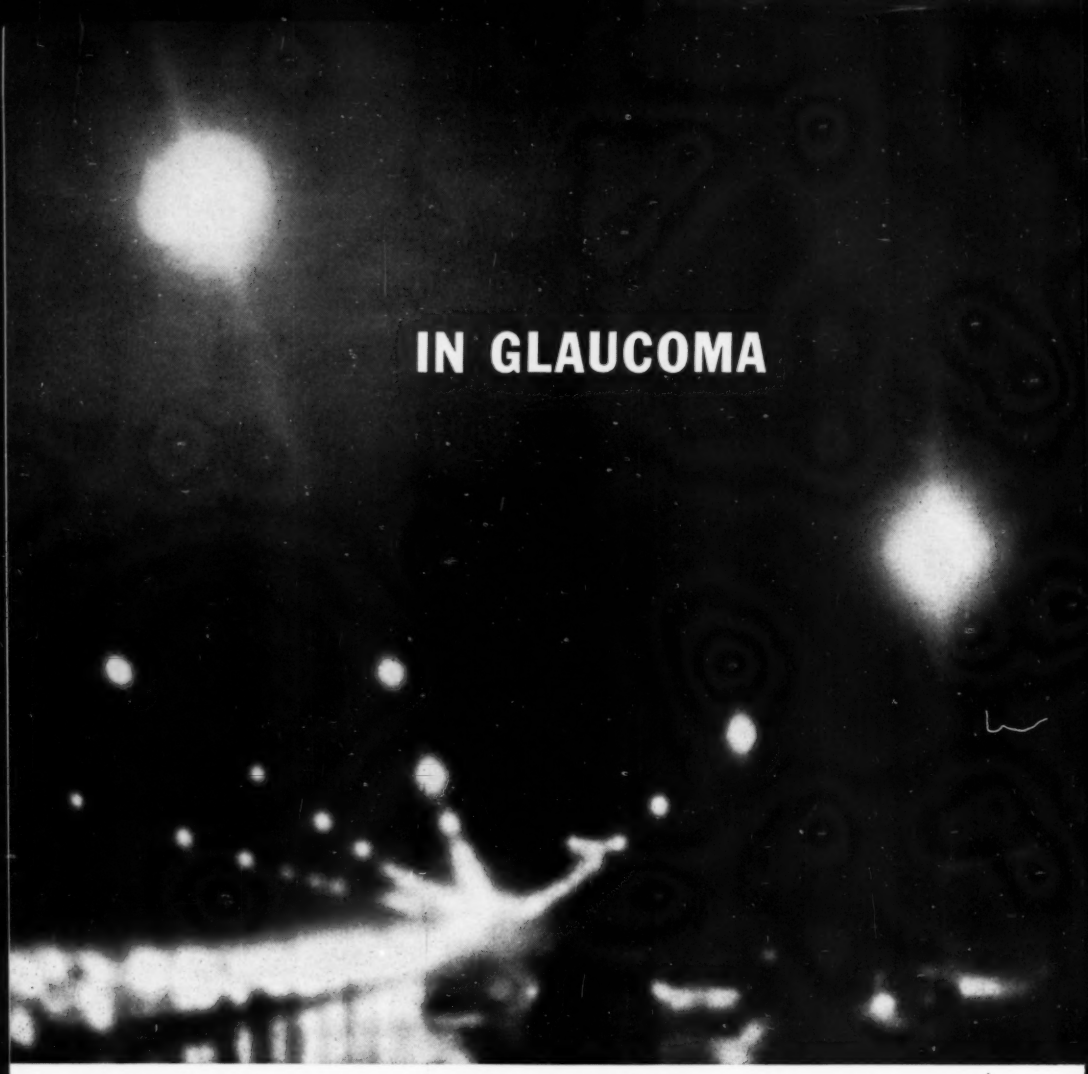

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[1]Girard, L. J., Dukes, C. D., and Fleming, T. C. Presented at the International Congress of Ophth., Brussels, Belgium, 1958.

[2]Kara, Gerald B., "The Use of Alpha-Chymotrypsin in Cataract Extraction," Research Report No. 10, Alcon Laboratories, Inc., 1959.

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(Figure 1)
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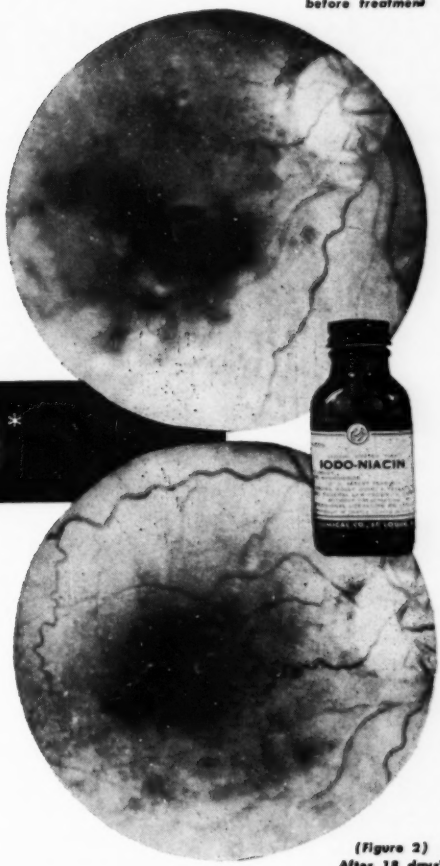

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1. *Am. J. Ophth.* 42:771, 1956.
2. *Am. J. Digest Dis.* 22:5, 1955.
3. *Med. Times* 84:741, 1956.

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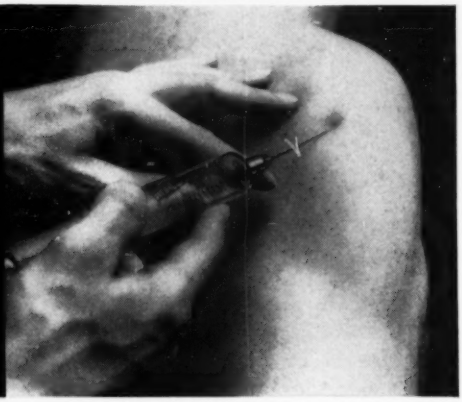

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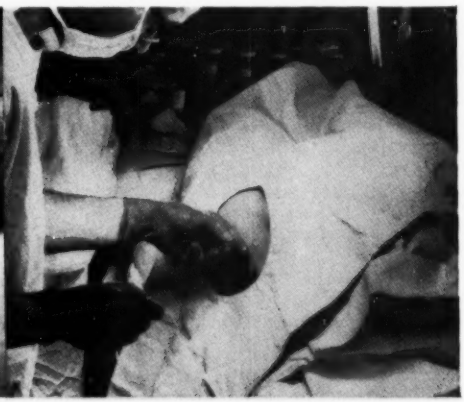

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references: 1. Current Researches in Anesth. & Analges. 33:275, July-August 1954. 2. J. Urol. 72:266, August 1954. 3. Anesthesiology 16:386, May 1955. 4. Western J. Surg., Gynec. & Obst. 59:533, October 1951.

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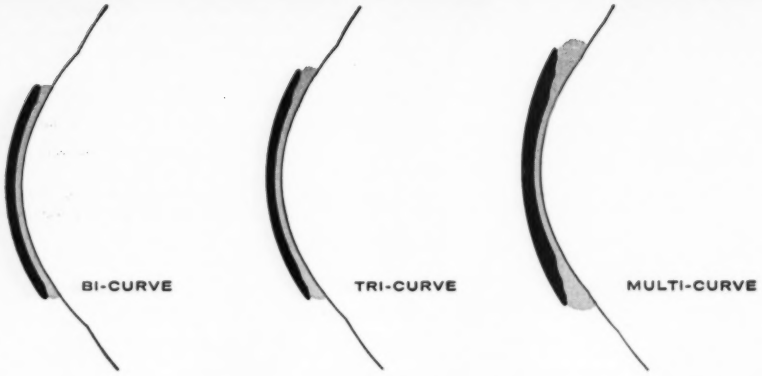

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INDICATIONS AND LIMITATIONS OF LIGHT COAGULATION OF THE RETINA

PROFESSOR G. MEYER-SCHWICKERATH
BONN, GERMANY
BY INVITATION

FOUR years ago I first had the privilege of speaking in the United States about my work in the field of light coagulation. At that time I reported on its use in the treatment of 41 patients; since then the number of patients treated has risen very markedly, and I am now in a position to report on the use of light coagulation in 1,000 patients.

The great increase in the number of cases treated with light coagulation is due to two main factors. First, we have had more clinical experience with this method of treatment and new indications have been evolved. I would like to stress at the outset that many of the indications are still in their very infancy, and further use and experience with light coagulation will prove whether they are true indications. Second, the technical development of the light coagulator has reached an unexpected degree of perfection because of the work of Dr. Littmann and his staff at the Zeiss works in West Germany. They have produced a light coagulator which has surpassed all expectations. All operators of the light coagulator will be indebted to Dr. Littmann for his great achievement, which was only possible through his great technical skill and his profound mastery of physiologic optics (fig. 1).

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This article was translated from the German by S. M. Drance, M.D., Associate Professor of Ophthalmology, University of Saskatchewan, Saskatoon, Canada.

The use of light coagulation is limited principally by the physical requirements of this method of therapy. It is therefore intended to discuss briefly the theoretical principles underlying light coagulation. The transparency of the ocular media allows radiant energy to enter the interior of the globe without very much loss. This transparency applies only to a small part of the electromagnetic spectrum—namely, the visible light spectrum and also a part of the shorter wave lengths of the infrared spectrum; i.e., wave lengths between 350 and 1,000 millimicrons. All other wave lengths not only fail to be useful in light coagulation but are also harmful, as they may lead to ultraviolet damage to the cornea or infrared damage to the lens. No damage to the refracting media occurs when radiations are transmitted, refracted, scattered, or reflected. Light coagulation is dependent on the absorption of the electromagnetic radiations and their conversion into heat. A normal eye shows such absorption mainly in the pigment epithelium of retina and iris and in the choroid. The retina, which does not absorb these radiations itself, is in such close proximity with absorbing tissues that it is coagulated by the heat generated in them. The detached retina, on the other hand, absorbs only a very small amount of radiation and its coagulation by means of light energy is almost impossible. Light coagulation is, therefore, only possible in relatively dark tissues, but owing to the intense heat generated in them, the tissues in their immediate proximity may also become coagulated.

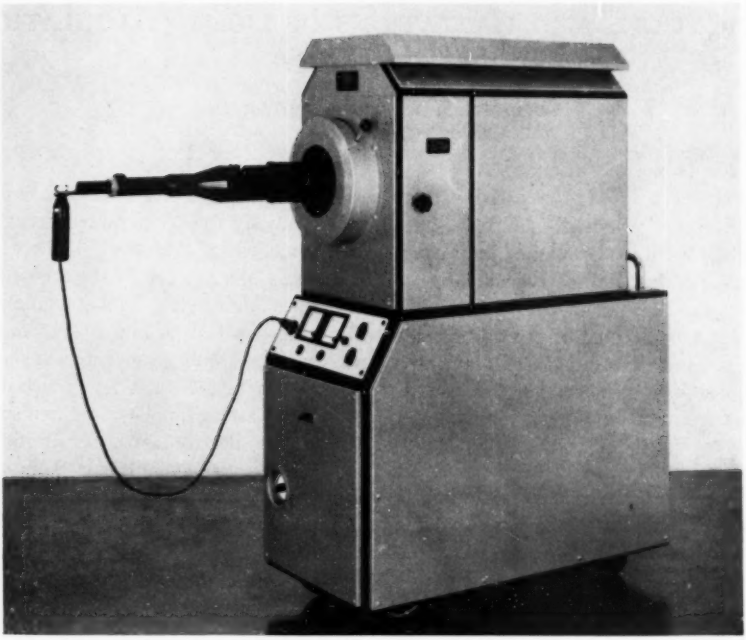

FIG. 1—The Zeiss light coagulator as developed by Dr. Littmann.

Another limitation of light coagulation arises in the fact that in the pigment epithelium and in the choroid the heat generated by the process of coagulation is rapidly dispersed by the freely circulating blood.

Very large quantities of light have to be absorbed and transformed into heat in order to produce a temperature high enough for coagulation to take place in small localized areas. The source of light must have a high density of radiation in the visible region of the spectrum. The eye must have a widely dilated pupil, fairly clear refractive media, and a certain amount of pigment in the tissues to be coagulated. In coagulating the periphery of the retina the available pupil becomes narrower, but light coagulation is possible right out to the ora serrata, particularly when the sclera is indented.

The details underlying the technical principles of the coagulator will not be discussed in this paper. The coagulator is an electrical ophthalmoscope in which the light source can be temporarily overloaded to such an extent that the area of fundus which is being observed and illuminated becomes coagulated by the heat produced. The electrical, optical and mechanical requirements of such an ophthalmoscope are very exacting and very great; this unfortunately finds expression in the high price of the equipment.

MACULAR HOLES

Light coagulation was originally perfected for the treatment of macular

holes. The idea originated from the observation of macular burns following each solar eclipse. In the treatment of macular holes, light coagulation is very easily used and also remarkably rewarding (fig. 2).

It must be stressed that the instructions which accompany the instrument have been designed to make the instrument absolutely safe and must be meticulously observed. I sustained a burn of my own retina as a result of an incredible accident in the course of an experiment which I was carrying out; fortunately, the consequences have not been too serious. The therapeutic use of the coagulator according to the instructions supplied with the machine makes it an absolutely safe instrument.

The coagulation of a macular hole is only possible under those conditions in which the retina is not separated from the underlying choroid. The coagulation can be regulated both as to size of coagulated area and intensity of the coagulation; this regulation of dosage protects valuable retinal tissue. In coagulating the posterior pole of the eye the whole pupillary area can be utilized, which makes the time of exposure to radiation very short, namely, between one tenth to a quarter of a second. The apparatus is set in such a way as to produce a burn which is slightly larger than the hole at the macula. Coagulation is then started with a very short exposure of about 0.04 of a second and is gradually increased until the edges of the hole turn white. If the retina is detached so that its coagulation becomes impossible, one has to proceed along the lines to be described for treatment of extensive detachments. The only three cases of macular hole in which we failed to produce adequate coagulation were cases in which the underlying choroid was white and atrophic. Eighty per cent of the successfully treated cases showed an im-

FIG. 2—(Top) Macular hole prior to light coagulation. (Center) Macular hole immediately after light coagulation. (Bottom) Macular hole twelve days after light coagulation.

provement or no change in the visual acuity, while 20 per cent showed a deterioration in the visual acuity which was usually slight. In three cases of macular hole I coagulated the underlying choroid through the hole in the retina without producing any burn of the surrounding retina itself. This was done in order to spare the retinal tissue. In one of these cases there was a subsequent re-detachment of the area surrounding the hole which was part of a larger detachment spreading to the macular area from the inferior periphery. In the other two cases there was some residual retinal edema surrounding the retinal hole in spite of the fact that a small amount of pigmentation could be seen in the external layers of retina, as evidenced by the slit lamp. A second coagulation which included the retinal area surrounding the hole led to disappearance of the retinal edema and, in one case, to a very definite improvement of the visual acuity.

I consider that in order to produce permanent closure of a hole by means of scar tissue between the choroid and retina, it is impossible to prevent some destruction of visual cells, at least the rods and cones must be involved in scar tissue.

The question is often raised, "Should macular holes be sealed at all by any of the available means of therapy, since they do not often lead to an extensive detachment?" My answer would be in the affirmative, for one cannot be certain of the prognosis in the individual patient. There seems to be a special tendency towards extended detachments in cases in which macular holes are associated with arteriosclerosis and in which there are bilateral hereditary macular holes, particularly with myopia. In the five bilateral cases which were treated, three patients had a total detachment in one eye.

PERIPHERAL HOLES AND TEARS

In cases in which there is a very definite tear or hole formation in the periphery of the retina, most surgeons advocate sealing such a break, even in the absence of a commencing or localized detachment. We treat all such cases as quickly as possible with light coagulation in order to seal the tear. I consider that the presence of pigmentation does not indicate that retinal separation will not occur. One frequently sees pigmentation in detached retinas, particularly in the operculum of a horseshoe tear and also in the choroid underlying a large retinal tear. These findings are so frequent as to suggest a close relationship between such pigmentation and the pathogenesis of hole formation in the retina (fig. 3).

Retinal tears without a generalized detachment are usually found in second eyes of patients undergoing treatment for serous detachment, but quite frequently patients will complain of symptoms which suggest a commencement of retinal separation. Even with all modern diagnostic means, one is often unable to decide whether a suspected area does show a tear involving all the layers of the retina. Following light coagulation such areas produce unmistakable evidence of previous perforating hole formation due to the contrast between the whitish coagulated retina and the reddish brown choroidal burn.

PROPHYLACTIC LIGHT COAGULATION OF PERIPHERAL RETINAL DEGENERATIVE AREAS

Many surgeons consider that the retina should be anchored to the underlying choroid prophylactically in cases in which there are retinal degenerative changes which have not yet produced holes but which frequently predispose to subsequent hole formation, particularly in patients who have lost one eye through a retinal detachment and who

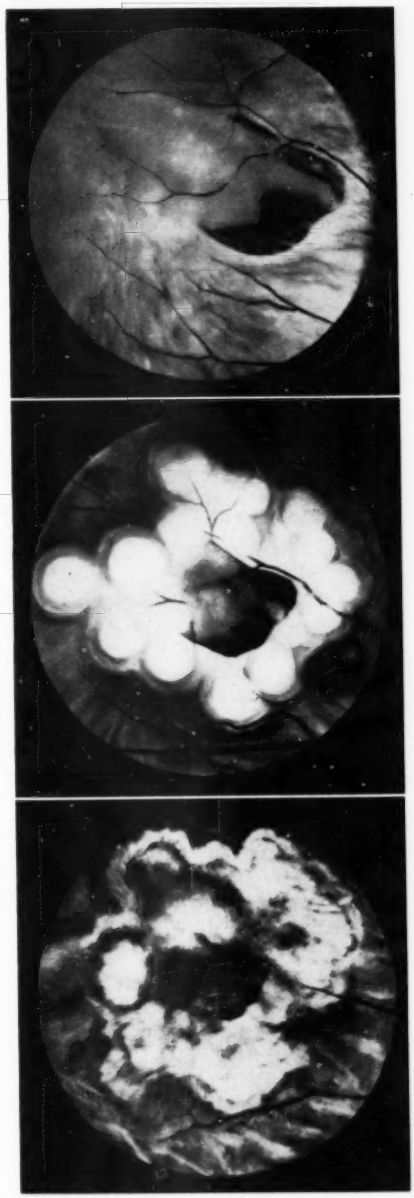

FIG. 3—(Top) Peripheral horseshoe tear of retina prior to light coagulation. (Center) Peripheral horseshoe tear of retina immediately after light coagulation. (Bottom) Peripheral horseshoe tear of retina twenty days after light coagulation.

have suspicious retinal degenerative areas in the other eye. The question arises whether prophylactic measures sometimes lead to ocular damage. At the recent International Congress in Brussels, I pointed out that with regard to this particular danger, light coagulation seems to be less dangerous than other measures but there is no method which does not involve some risk to the eye, particularly when one treats eyes known to be predisposed to complications.

There are a number of syndromes in which retinal detachments are so frequently bilateral that prophylactic treatment is particularly indicated. In Marfan's syndrome it has been frequently suggested that the periphery of the retina should be diathermized prior to the removal of a subluxated lens. In cases of presenile complicated cataracts with liquefaction of the vitreous, and also in cataracts accompanying neurodermatitis, retinal detachments are very frequently bilateral. In such cases, when the lens change is not very advanced, prophylactic light coagulation is performed. If the lens changes are so marked that it is impossible to treat these patients with light coagulation, extraction is carried out and is followed by light coagulation. In eyes prone to detachment it is recommended not only that the degenerative area be coagulated, but also that a barrage of coagulations should be put down throughout the entire periphery of the retina. Such a barrage involving 100 to 200 coagulations produces a new and artificial ora serrata. The peripheral field of vision, particularly in the inferior and temporal quadrants, is diminished by 5 to 10 degrees, but such limitations of the visual field are not normally noticed by the patient. In monocular patients such a restriction may produce some difficulty; therefore, the barrage of coagulation in the upper nasal periphery is placed particularly far into the periphery of the retina.

EXTENSIVE AND CYSTIC DETACHMENTS

Retinal detachments in which the retina is separated from the pigment epithelium and choroid by more than one to two diopters can only be treated by light coagulation if the retina can be brought back into apposition with the choroid by either conservative or operative measures. It was well known even before the days of Gonin that a freshly detached retina or part of a fresh detachment can be brought back into apposition with the choroid by recumbency and complete rest of the eyes. Such apposition was known to be only temporary. During the past few years this well known phenomenon has been used in conjunction with light coagulation. All patients with fresh retinal detachments were kept in bed and both eyes were bandaged. This conservative therapy was not extended beyond one week. It was found that binocular bandaging was more effective than perforated spectacles (Lochbrille), probably due to the fact that patients do not use the spectacles correctly in spite of careful instruction; but it is also possible that the binocular bandage has the further advantage of inducing Bell's phenomenon, whereby the gravitational effects in the vitreous compartment are altered.

It has been found in our experience that about 10 to 20 per cent of retinal detachments of less than two months' duration can be brought into apposition with this conservative method. These cases can then be treated by light coagulation alone and they show more clearly than the experimental investigations that light coagulation can produce reliable closure of retinal tears.

In extensive retinal detachments with several tears or holes, this conservative therapy may bring about the apposition of only some of the tears to the choroid. In such cases tears which have become adherent to the choroid can be closed with light coagulation and those which have failed to become approximated are then treated by surgical means.

In patients who showed a hole of the macula in conjunction with a peripheral tear and in whom spontaneous apposition of the retina failed to occur, a surgical attack on the peripheral tear was carried out, following which the macular hole was treated and sealed by means of light coagulation.

On rare occasions a simple puncture which produces drainage of subretinal fluid succeeds in producing sufficient reapposition of the retina to make it possible for light coagulation to be curative. It has been attempted to aid apposition of the retina by retrobulbar injections of hyaluronidase and oral Diamox therapy; however, these measures were not convincingly effective.

LIGHT COAGULATION IN CONJUNCTION WITH SURGICAL TREATMENT

In recent years the combination of light coagulation with surgical procedures has come to the fore. Early in our work light coagulation was used only in postoperative treatment. Retinal tears are often incompletely sealed, no matter what type of surgical treatment is used. Secondary tears may occur after operative treatment, and some retinal tears which had previously not been seen become visible following surgical procedures. If such tears are in apposition with the choroid, light coagulation can be used to seal them immediately following the operative procedures. If the retinal tear is detached but the detachment is only localized, then light coagulation can be used to seal the entire area of detachment.

Another method of using light coagulation in combination with surgical therapy is to make light coagulation an integral part of the surgical procedure.

The operation is carried out to bring the retina into apposition with the choroid and, at the same time, light coagulation is used to close the tear. Three examples of such combined therapy are described: (1) A hole of the macula which is detached can be brought back into apposition by a scleral resection carried out on the temporal side, with drainage of subretinal fluid. At the end of the surgical procedure the hole of the macula is sealed by light coagulation. (2) Incompletely sealed retinal tears in previously diathermized areas lead to recurrence of detachment. In such cases the volume of the globe may be reduced surgically by performing scleral resection or polyethylene intubation in a previously treated site. Drainage of subretinal fluid produces apposition of the retina; the incompletely sealed tears can then be sealed with light coagulation without disturbing the area previously operated upon. (3) Similar therapy can be carried out when the retinal tear is considerably detached and is not amenable to coagulation without drainage of subretinal fluid.

THE USE OF LIGHT COAGULATION IN PERFORATING INJURIES

Perforating scleral injuries and removal of intraocular foreign bodies by the posterior route are always accompanied by the risk of retinal detachment. A barrage of surface diathermy surrounding such a scleral perforating wound or a scleral incision for the removal of an intraocular foreign body is not always effective or practical in a soft eye. Such cases, providing the refracting media are clear, are suitable for light coagulation, which, by producing chorioretinal scarring, anchors the threatened retina into position. An intraocular foreign body which adheres to the retina can be surrounded by chorioretinal burns with light coagulation before the foreign body is extracted. The extraction of the foreign body should be undertaken ten days after coagulation, when the chorioretinal burns start to become pigmented.

TREATMENT OF RECURRENT VITREOUS HEMORRHAGES

A number of reports of successful treatment of periphlebitis retinae by means of surface diathermy have suggested to us that light coagulation might be similarly successful in the prevention of recurrent vitreous hemorrhages. Our experiences with this method of treatment for the past three and a half years are rather encouraging. Retinal blood vessels which are the site of pathologic changes are easily occluded by light coagulation. It is rather more difficult to coagulate blood vessels which have proliferated into the vitreous, but such coagulation is facilitated by arresting the circulation of blood in these vessels by exerting pressure on the globe (fig. 4). During such treatment, retina and choroid are unavoidably coagulated at the same time, but by considering the course of the nerve fibers in the retina one can avoid producing large field defects. Light coagulation of the posterior pole often leads to traction folds during the process of healing; these can impair central vision.

Cases of recurrent vitreous hemorrhages have a particularly good prognosis if they are treated by means of light coagulation at a very early stage of the disease process.

LIGHT COAGULATION OF NEOPLASMS

The eye and its adnexa can be the seat of a variety of benign and malignant neoplasms. Patients consider both the benign and the malignant tumor particularly unpleasant if vision is threatened. This is particularly tragic when

both eyes are involved or when the neoplasm involves the only remaining eye. In all cases an attempt must be made to destroy the neoplasm and at the same time to conserve as much vision as possible. Enucleation of the globe offers no conservation of vision, but it does offer, in most cases, the certainty of radical removal of the neoplasm. This is, therefore, the treatment of choice for malignant lesions when there is no chance of destroying the neoplasm with the conservation of any useful vision. Roentgen therapy and other ionizing radiations make it possible under certain circumstances to destroy malignant neoplasms and yet conserve some of the vision in the treated eye. The great disadvantage of all radiation therapy is the great radiosensitivity of the epithelium of the lens, which reacts, even to small doses of radiation, with radiation cataracts. Reese in New York and Stallard in London have worked out radiotherapeutic techniques which aim at avoiding damage to the lens as far as possible.

Weve in Utrecht has used surface diathermy in the treatment of the various neoplasms in the eye with outstanding success.

Light coagulation, which was designed mainly for the therapy of retinal detachments, has also proved to be useful in the treatment of ocular neoplasms.

A. *Malignant melanomas* of the choroid respond poorly to radiation. Etiologically and biologically they do not fall into the same category as the very malignant melanomas of the skin. The tumors are malignant and enucleation is the standard therapy, but in spite of such radical therapy the prognosis is still poor. In the course of ten years, 60 per cent of the patients so treated died from metastatic lesions, particularly in the liver. It is astonishing that such lesions can appear after a latent period of over twenty years. It is well known from histologic studies that even in the early stages of malignant melanoma, viable tumor cells reach the blood stream in

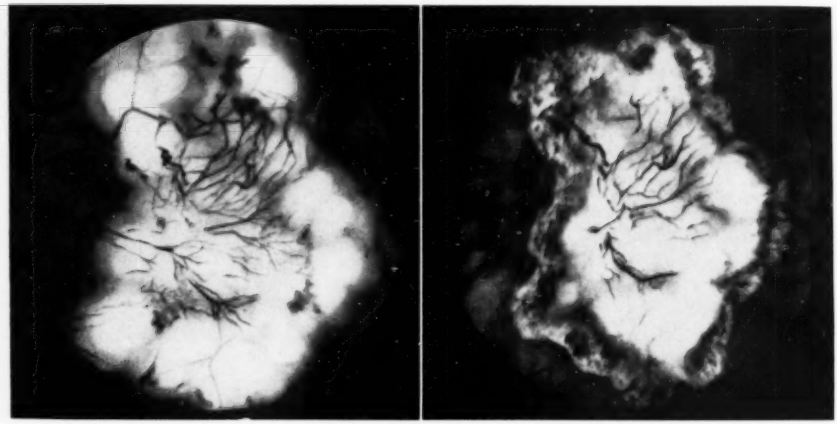

FIG. 4—(Left) Peripheral proliferation of blood vessels in Eales' disease immediately after light coagulation. (Right) Commencement of scarring twenty days later.

fairly large numbers. The conditions under which such cells actually form metastatic lesions are not yet known. Weve has used surface diathermy to coagulate malignant melanomas and has reported excellent results from this form of treatment. He has treated twenty patients in the course of the last twenty years, and so far none of his patients have died from metastases. In the early experimental stages in the use of light coagulation for the treatment of malignant melanoma, coagulation was carried out shortly before enucleation was contemplated and histologic examinations of the tumors followed. It appeared that the neoplastic tissue showed very considerable necrosis following light coagulation. Encouraged by these findings and the reports published by Weve, sixty-five cases of malignant melanoma have been treated by means of light coagulation. In twenty-four of these the eyes were enucleated following the light coagulation in order to study histologically the action of light coagulation on these tumors and also to establish the indications for light coagulation in their treatment. In the remaining cases the affected eye was coagulated on repeated occasions. In twenty-two cases the neoplasm seemed completely destroyed, as evidenced by ophthalmoscopy. The other patients are still undergoing therapy.

Light coagulation of malignant melanoma was started towards the end of 1952; to date, none of the patients who have not undergone enucleation have shown any signs of metastasis.

Light coagulation obliterates the blood vessels feeding and draining the neoplasm and thus isolates the tumor from its environment. This obliteration of the blood supply surrounding the tumor makes the reabsorption of the necrotic tumor a very slow process. The tumor mass therefore remains ophthalmoscopically visible for months or even years. The slow absorption of necrotic material and pigment may be mistaken for further activity and growth of the neoplasm. Light coagulation can be used in conjunction with the surface diathermy technique of Weve, particularly in neoplasms which are fairly extensive and which occur in an only eye.

B. *Malignant lesions in the choroid* due to metastasis from carcinoma of the breast are very radiosensitive and also respond to hormonal therapy. Only four patients with small metastatic lesions in the second eye have been treated by means of light coagulation. In three cases the tumor was destroyed. In the fourth case the treatment had to be augmented by radiotherapy.

C. *Retinoblastoma* (glioma retinae) is one of the most malignant neoplasms of early childhood. In about 20 per cent of cases both eyes are involved.

The treatment of retinoblastomas by means of light coagulation was started rather late, in spite of the fact that the other intraocular neoplasms showed good response to light coagulation. The main reason for this late start in the treatment of retinoblastoma was due to the fact that radiotherapy of retinoblastomas as described by the methods of Reese and Stallard showed great advances from the previously used methods. In spite of these improvements, damage to the lens and to the skin and the subsequent extensive intraocular hemorrhages cannot always be avoided. The first case treated by means of light coagulation had such a favorable course that this form of therapy was more fully worked out. Light coagulation has been used in the second eye of twenty-two patients with bilateral retinoblastoma. In three cases the tumor was so large that it was impossible to destroy it by means of light coagulation alone; in those cases radiotherapy was used following the at-

tempted light coagulation. In the remaining cases the neoplasms were successfully destroyed by means of repeated light coagulation. The neoplasms were converted into smooth pigmented scars often impregnated with white hemispherical calcium deposits (fig. 5).

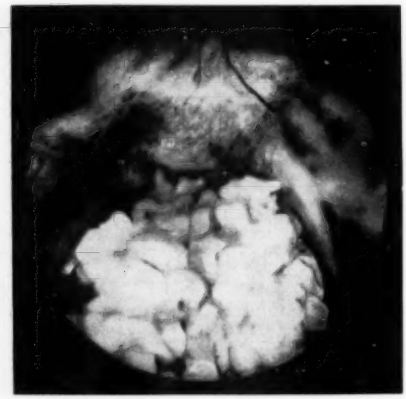

FIG. 5—Calcareous deposits in the scar of a large retinoblastoma treated with light coagulation.

Retinoblastomas tend to show multiple origins in the eye and also recurrences in the center or at the edges of scars produced by coagulation. Children with these lesions must therefore be examined very thoroughly under general anesthetic at intervals of two to four weeks.

The good results obtained in the treatment of small retinoblastomas lead us to undertake a very thorough examination of the second eye in all children who have already lost one eye from retinoblastoma. Our own routine of examinations and follow-up of these cases has already been published.

D. *Angiomatosis retinae* (von Hippel-Lindau) is one condition in which use of light coagulation is rewarding. In cases of multiple lesions in all four quadrants of the retina and also in the vicinity of the macula, vascular loops can be destroyed with much conservation of vision. In two eyes with seven and eight tumor masses, respectively, destruction of the vessel loops was achieved without any serious complication. We have found that a large hemangioma should not be destroyed too rapidly, as rapid destruction of these vascular lesions may cause retinal detachment and a rather serious circulatory disturbance.

The great advantage of light coagulation over surface diathermy manifests itself particularly in the treatment of angiomatosis retinae. In this condition the slow destruction of large angiomatous masses is desirable and can be achieved by means of light coagulation, but it is rather difficult to carry out by means of surface diathermy. Twenty-seven patients with this disease, which almost always occurs bilaterally, have been treated by light coagulation, all but one successfully (fig. 6). In the exception, a large angioendothelioma was adjacent to the optic disc.

The success in the treatment of retinal angiomas is all the more pleasing because the surgical treatment of the associated angiomas of the cerebellum is favorable.

E. *Leber's miliary aneurysms of the retina.* Three patients with this disease have been cautiously treated by means of light coagulation to the aneurysmal vessels, and a regression of the yellowish white retinal exudates has been obtained.

F. *Hemangiomas of the choroid and retina* can also be destroyed by means of light coagulation. Only one case of this very rare lesion has been treated and the outcome was successful.

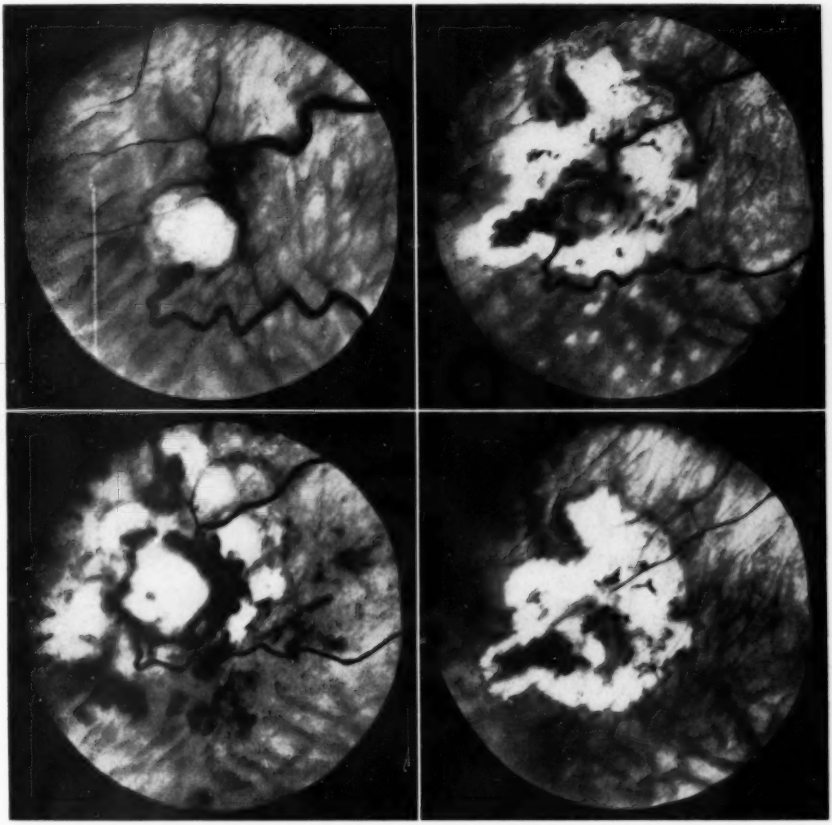

FIG. 6—(Upper left) Retinal angioma 1.5 disc diameter size. (Upper right) Same tumor after two light coagulations. (Lower left) Two days after the third light coagulation. (Lower right) Four weeks after the third light coagulation.

G. *Iris tumors.* These lesions can be treated by means of light coagulation. A simple attachment to the coagulator is used which was originally designed for the fashioning of pupils in cases of an updrawn iris following unsuccessful cataract extractions. This attachment brings the light rays to focus a few centimeters in front of the apparatus by means of an aspherical lens, and the light rays are focused on the iris under direct vision. In order to protect the cornea from overheating and desiccation, a plastic ring filled with saline solution is placed on the limbus. The iris is coagulated through this layer of water, through the cornea and anterior chamber. On opening the shutter of the coagulator the tissue in focus becomes coagulated. In localized iris tumors, iridectomy is usually performed in order to obtain histologic sections. In one case in which a tumor occurred in an only eye, a small growing melanosarcoma was

destroyed by means of light coagulation. The underlying lens showed one small subcapsular opacity which did not show any progression.

Two cases of hemangioma of iris with recurrent hyphema were treated with light coagulation. In each case two applications produced complete destruction of the lesion and cessation of the recurrent hyphema.

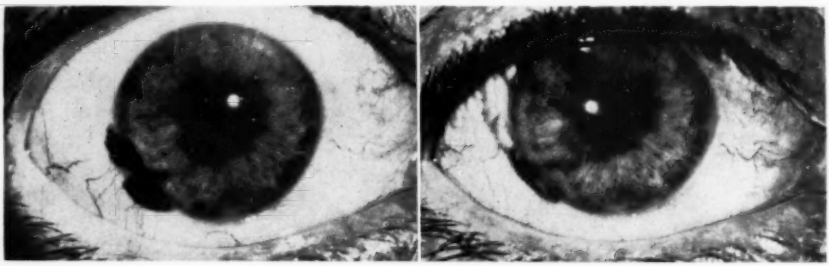

FIG. 7—(Left) Melanoblastoma of limbus (in an only eye). (Right) Same eye one month after single light coagulation.

NEOPLASMS OF SKIN AND CONJUNCTIVA

Skin tumors and conjunctival tumors can be treated by means of light coagulation with the attachment to the coagulator described. A melanosarcoma and a carcinoma of the limbus were completely destroyed by means of two exposures to light coagulation without causing any damage to the eye (fig. 7). Considerable experience has been gained in the treatment of xanthelasmas by means of light coagulation without the production of any scars. The advantage of using light coagulation for these lesions lies in the fact that the superficial layers of the skin, which are transparent, remain completely undamaged as the light absorption occurs essentially in the xanthelasma.

The same principle is also applicable to the treatment of hemangioma of the lids.

COAGULATION OF THE IRIS

The simple attachment to the coagulator already described makes it possible to coagulate the iris by means of the light coagulator.

The coagulated tissue may react in one of two ways. If the iris is heavily pigmented and the connective tissue shows little pathologic change, the intense heat of the coagulated tissue causes a fairly rapid boiling of the intracellular fluids, which leads to an audible explosion of the tissue at the site of the coagulation and instantaneous hole formation in the iris. In the absence of such an explosive reaction, the coagulated tissue forms a typical burn which can be recognized by its brown discoloration and by destruction of the fine architecture of the iris surface. If the connective tissue of the iris shows little in the way of previous pathologic change, a piece of coagulated tissue dissolves slowly and a hole develops in the iris in the course of a few weeks or months. If the iris tissue shows much previous pathologic change, as in uveitis following the extraction of a lens, the remnants of iris tissue and blood vessels in the coagulated area disappear and a whitish membrane remains on which pigment is gradually deposited. No holes can be made in this membrane even by repeated light coagulation. If

TABLE I

DISEASE	NUMBER OF CASES	REMARKS
1. Retinal defects without detachment (prophylactic therapy)		
a. Macular holes	98	Of 490 cases treated prophylactically, 14 eyes developed detachments in spite of therapy.
b. Peripheral tears	172	
c. Equatorial degeneration	220	
2. Light coagulation to isolate localized peripheral detachments	51	Eleven unsuccessful cases.
3. Detachments in which rest and double padding produced apposition; light coagulation to seal tears (including macular holes)	52	Three cases showed recurrence of detachment.
4. Combined use of light coagulation and surgical operation	220	Twenty unsuccessful results.
5. Perforating injuries	56	Fourteen unsuccessful results.
6. Eales' disease (almost all cases bilateral)	111	Eighty-nine cases have remained free from severe hemorrhages; 3 developed detachments; 3 developed central chorioretinitis.
7. Neoplasms		
a. Malignant melanoma	65	Twenty-two eyes were clinically "cured"; 24 were enucleated to observe histologic changes after light coagulation; in 6 cases, coagulation was combined with surface diathermy.
b. Retinoblastoma	22	One eye was enucleated because of severe hemorrhage; tumor histologically destroyed. Three cases were treated with radiotherapy after light coagulation.
c. Angiomatosis retinae	27	Five patients had previously been treated with surface diathermy.
d. Carcinoma of breast; secondary deposits in choroid	4	These cases are only exceptionally treated with light coagulation as they are radiosensitive.
e. Hemangioma of choroid and retina	2	Complete destruction; no complications.
8. Miscellaneous fundus lesions		
a. Solitary foci of chorioretinitis	12	
b. Coats' disease	7	In these conditions the experience has been too limited for any conclusion.
c. Miliary aneurysms of retina (Leber)	3	
d. Kuhnt-Junius	6	
e. Tuberous sclerosis	1	
9. Coagulation of iris and superficial ocular tissues		
a. Fashioning of pupils	63	Twenty-six patients had improved visual acuity without subsequent surgical procedures.
b. Iris tumors (angioma and melanoma-blastoma	3	All successful.
c. Corneal vascularization after keratoplasty	2	Limited experience.
d. Tumors at limbus (melanoma; carcinoma)	2	Clinical cures in both cases.
e. Xanthelasma	62	Good results without scarring.
f. Hemangioma of lids	3	

the iris is coagulated in front of a normal lens, the latter develops a small circumscribed subcapsular opacity immediately adjacent to the coagulated focus. It is for this reason that most of the iris coagulations which we have carried out were performed on aphakic eyes which had undergone extraction for a complicated cataract and in which an old iridocyclitis had flared up after the operation and led to occlusion of the pupil. Or the iris coagulation was sometimes done in eyes which, after unsuccessful cataract operations, had shown an updrawn pupil.

In the cases in which the iris coagulation does not lead to the formation of a new pupil, this method of treatment is a very useful preparation for operative intervention, for it leads to the destruction of blood vessels and prevents the dreaded hemorrhage at the time of operation. The iris is extremely sensitive to pain and good anesthesia must be attained by retrobulbar injection of a local anesthetic.

CONCLUSIONS AND SUMMARY

The success achieved by light coagulation cannot be compared with the success attained by surgical measures, as light coagulation can only be used in selected cases. The advantages of light coagulation are (1) the simplicity of its use, (2) the ease with which it can be repeated, and (3) the very accurate localization of the coagulated area at the posterior pole of the eye. In the treatment of retinal detachments, light coagulation supplements the classical operative intervention and is not intended to eliminate surgical procedures. Our experiences in the cases so far treated by means of light coagulation are summarized in table I.

In conclusion, I would like to stress again that many indications for light coagulation are still in an experimental stage. We have used this new method of therapy only in those cases in which existing forms of therapy often produced poor results and gave rise to complications. It seems certain that in some conditions light coagulation will be the method of choice, but it is equally certain that in some others which we treated with light coagulation other methods of therapy will be more successful.

TUMORS OF THE LACRIMAL GLAND

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SEVERAL papers both by clinicians and by pathologists have been presented in the past on this basic subject. That paper by Jones and Pfeiffer[5] read before this academy in 1954 must have special mention. After reading it one might say, "There is not too much more to discuss about the subject." This paper, and the comment is in no way an adverse criticism, was one with an emphasis upon the roentgenographic changes in the orbit. Its authors had the remarkably good fortune of being able to present 20 cases of tumors of the lacrimal gland for study from a roentgenographic aspect.

The presentation today is planned to stress additional aspects and related situations; that is to say, conditions with similar signs and symptoms, and the ophthalmologic treatment of these disorders. We shall also point out how our opinion differs with the literature.

There are three further subdivisions to be presented in the consideration of this subject. The first is the common symptomatology of these neoplasms. The second is the preoperative differential diagnosis, especially the differentiation of malignant lesions from cysts of the gland, from sarcoid, from the Mikulicz's syndrome, and from inflammatory conditions such as chronic dacryoadenitis. For completeness in detail, we shall mention other possibilities, such as tuberculosis, syphilis, uveoparotid fever, mumps, and thyrotropic orbital disease. The third subdivision is related to the various types of neoplastic tissue found, their individual diagnostic characteristics, and a consideration of the treatment of the various neoplasms.

These symptoms common to most lacrimal gland conditions are diagnostic only of orbital disease. They may frequently differentiate inflammatory from neoplastic disease; but they will not indicate, with any degree of accuracy, those cases wherein the disease is limited to the lacrimal gland. Also, it is interesting, but confusing, to find occasional neoplasms accompanied by inflammatory signs and the reverse, non-neoplastic conditions free of inflammatory signs and symptoms.

There are three rather common signs. There may be an outward displacement of the globe and, with it, limitations in upward movement. A palpable mass should lie in the upper outer angle of the orbit. There are moderate to severe degrees of engorgement of the conjunctival vessels with edema. A superior palpebral cul-de-sac mass is not always found, and if found it may not be due to a lacrimal gland neoplasm.

Figures 1, 2, and 3 illustrate the most frequent neoplasms of the lacrimal gland. It would be quite impossible to make a differential diagnosis in these cases without the history, and without histopathologic examination.

The proptosis, or exophthalmos, always develops slowly in neoplasms, as contrasted with non-neoplastic diseases, and it seems to increase most slowly with the mixed cell tumors. Chronic adenitis

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FIG. 1—Mixed cell tumor of the lacrimal gland. (Left) The primary lesion in 1926 prior to first operation (left eye). (Right) Following orbital exenteration. The tumor recurred 21 years after the primary gland extirpation. Death occurred one year later from intracranial extensions.

FIG. 2—A case of microscopically confirmed sarcoma of the lacrimal gland. Permanent recovery followed an exenteration of the orbit and roentgen therapy. (Patient of Dr. William B. Harrison referred to the author for surgery)

FIG. 3—So-called lymphosarcoma of the lacrimal gland, microscopically confirmed following an extirpation of the gland. The patient died five years later of pulmonary involvement.

seems to cause more subjective and objective symptomatology, such as tearing, pain, inflammation with edema of the conjunctiva and congestion of the conjunctival vessels with redness of the overlying lid. One patient was seen with a frank entropion. While the usual finding seems to be increased lacrimation, one patient referred for surgical correction had decreased tearing, to such an extent that use of artificial tears (methyl cellulose) had become necessary and had been used for almost a year prior to the surgical extirpation. In one case there was also a significant increase in the white blood cell count.

Tuberculous dacryoadenitis may be quite painless; also, it may have a severe inflammatory course. Apparently the degree of tuberculous caseation controls this inflammatory aspect. These patients, it has been reported, usually have, simultaneously, pulmonary tuberculosis or tuberculosis of the cervical lymph node. Syphilitic dacryoadenitis as a form of secondary syphilis offers no diagnostic problems. A gumma of the lacrimal gland has been reported. It is doubtful whether the diagnosis can be made preoperatively on the basis of the eye signs and symptoms alone. Other factors in the case may be significant historically.

The Mikulicz syndrome should not be confused with lacrimal gland neoplasms. That paper of 1891 by the Hofrat Professor Fuchs[3] still stands as the classic. Some of the characteristics of the syndrome mentioned in that article are bilateral, soft, painless swelling of the salivary glands, especially the parotid; an accompanying dry gingivitis; occasionally generalized illness; and last, a slow spontaneous resolution which sometimes seems to be hastened by some other intercurrent nonrelated infection—perhaps an interesting possibility of nonspecific protein therapy. There is

some question in the author's mind as to whether this syndrome (not disease) is a clinical entity.

Sarcoid of the lacrimal gland has been seen by the writer. The preoperative notes made in that case were, "This seems to be a classical case of mixed cell tumor of the lacrimal gland." Histologically, following complete extirpation, the diagnosis was Boeck's sarcoid. Bilateral manifestations of this disease have also been reported. In this condition the rather firm attachment of the orbital mass to the other orbital structures, even to the bony orbit, seems to be a constant characteristic. This was the author's experience, and the same comment has appeared in the literature.

Perhaps the greatest problem in differential diagnosis is connected with cases of chronic adenitis, i.e., not those of the tuberculous type.

In these situations the rapidity of growth, the inflammatory changes, the slight pain upon palpation, the greater amount of conjunctival edema and of lid swelling, the extended time during which gross pathologic changes have been present, the absence of any bony changes, and the small percentage of bilaterality of these cases are all of assistance. Duke-Elder's comment[2] is so true that it must be quoted verbatim here: ". . . but the decision whether the swelling is inflammatory, cystic or neoplastic, and if inflammatory, the determination of the nature of the inflammation, is frequently based on evidence so slight that recourse must frequently be had to its excision and histological and bacteriological examination."

The most interesting case of chronic adenitis seen by the author was that of a 25-year-old young man referred from a nearby state for examination and therapy. The admitting diagnosis was "ectropion of the upper lid, the result of chronic orbital cellulitis." Slight exophthalmos was present. The eyeball was displaced slightly downward. Considerable ectropion of the upper lid was present. The conjunctivas, both bulbar and palpebral, were edematous; and the cornea was damaged because of an exposure keratitis. The patient had had a tarsectomy performed prior to admission because of the ectropion and pathologic changes in the superior cul-de-sac. The diagnosis of chronic adenitis, responsible for the changes mentioned above, was not made until after the postoperative microscopic examination of the extirpated gland.

The preoperative differential diagnosis of neoplastic involvement of the lacrimal gland is based on a diagnosis of malignancy; an attempt is made to differentiate mixed cell tumor from adenocarcinoma, from sarcoma, and/or from lymphomatous conditions of the lacrimal gland.

Various types of neoplasm have appeared. The first and most frequent (including at least 90 per cent of the tumors of the lacrimal gland) is the mixed cell tumor of the lacrimal gland (fig. 1).

There, both pathologists and ophthalmologists have shown considerable confusion in their published discussions of this tumor. Ingalls[4] states that "they are now thought to be epithelial in origin." In this same publication, Ringertz[8] is quoted, in his discussion of the pathology of these tumors, as follows:

> The main components of these tumors are epithelial cells and an interstitial substance composed of a coalescence between epithelial secretory products and mesenchymal structures. Sometimes the lumina are lined by a single layer of cuboid cells and present a picture previously believed to be endotheliomas.

Other authors speak of them as "pleomorphic endotheliomas" and "cylindromas."

"Cylindroma" may connote a tumor somewhat different from the true mixed cell tumors. The term is properly applied to those pleomorphic tumors which, while not classically adenocarcinomatous, are predominantly epithelial. This differential factor is not wholly academic, because the tumor with characteristics of cylindroma is radium sensitive to a somewhat greater extent than are those of the mixed-cell type. (This will be discussed under "Treatment.")

The mixed-cell-type cases have one interesting feature. An observation has been made, in these cases, that when recurrences are studied carefully histologically, tissue changes seem to occur. The recurrences, in appearance, tend to resemble classical adenocarcinoma. This was especially conspicuous in one case wherein the third recurrence (in the terminal stage, more than twenty years after the original gland extirpation) was diagnosed adenocarcinoma before the earlier pathologic sections could be reviewed. In this case the primary histopathologic findings presented by Zentmayer[12] in the *Transactions of the American Ophthalmological Society* of 1928, were undoubtedly those of a mixed cell tumor of the lacrimal gland. Dr. Zentmayer had operated on this patient July 1, 1927. It is rather interesting that this patient died under the author's care on August 29, 1947, from intracranial extension with papilledema in his remaining eye, following a transfrontal operation by a neurosurgeon and orbital evisceration by the author. The last paragraph in the original pathological report of 1928 is most startling:

> The growth is relatively benign, that is, it probably has the same tendency to recur that parotid tumors have—25% to 50%—but metastases are not to be expected.

In spite of the fact that the course of this case is not greatly dissimilar from that of most cases of mixed cell tumor of the lacrimal gland, statements are still appearing in the literature — the latest only a few weeks prior to this writing— describing these lacrimal gland neoplasms as benign. A later note herein will emphasize the high mortality rates of this tumor. Ingall's sentence[4] is concurred in without reservation:

> This tumor is malignant from the beginning but takes on added malignancy when growing and produces late metastases.

Adenocarcinoma is next in frequency. This incidence, however, as compared to that of the mixed cell tumors, is much smaller. Reese[7] stated that he had had only three such cases. The author has had two such cases. These also will be discussed in more detail under "Treatment."

Benign adenoma and cysts of the lacrimal gland, for this presentation, are to be considered together. Possibly both arise as foreign body cysts, retention cysts, or even, according to Sourdille,[10] as a result of chronic inflammation.

The mucoepidermoid tumors described by Reese,[7] quoting the presentation of Stewart, Foote and Becker[11] (and including a case of McGavic's), can be included within the consideration of the adenocarcinomas. The degree of malignancy of these tumors varies considerably, from slow-growing cases to those with a high degree of malignancy and with a bad prognosis. Histologically, in the benign tumors, mucous cells, mucin secretion and intermediate cells are outstandingly present. The malignant varieties have, as would be expected, a predominantly high percentage of epidermoid cells.

Round cell sarcoma has been reported. The author has had one such case. The diagnosis was not made preoperatively. Also, some doubt has always ex-

isted in the author's mind as to the correctness of the diagnosis in this instance. There is a probability, in this case, that the neoplasm was of a lymphomatous type. It was significant that no other characteristics of lymphomatous disease were found in this patient, nor have any recurrences appeared for the two years since the original gland extirpation and roentgen therapy (fig. 2).

The lymphomatous types of involvement of the lacrimal gland, excluding any consideration of the Mikulicz syndrome, are lymphoma, lymphosarcoma, reticulum cell sarcoma and lymphoblastoma (fig. 3). It is unfortunate that too often these conditions can be diagnosed only following the extirpation of an enlarged lacrimal gland. Ideally, in these cases the surgical procedure should have been limited to that necessary for a histologic diagnosis. The fact that these tumors are radium sensitive does not eliminate the probability of local recurrences following local radium therapy, or even the appearance of the same disease in some other portion of the body. They are radium sensitive, but not necessarily cured by radium.

TREATMENT

The treatment of all neoplasms of the lacrimal gland is surgical. This must be so because the diagnosis of the type of disease present is frequently impossible before the gland extirpation. Some factors of possible assistance in the diagnosis can be mentioned again at this time. The presence or absence of inflammatory signs, the extent of the swelling, the consistency and size of the mass and its extension into the lid are factors of importance. The rapidity of growth is also significant. The mixed cell tumor grows very slowly. Adenocarcinoma seems to advance a bit more rapidly. Lymphomatous diseases, theoretically, should have other systemic signs and symptoms of this basic condition.

A rather classical case of mixed cell tumor of the lacrimal gland is that of a white woman, age 36 years. This patient had a slowly increasing exophthalmos of the left eye which had been present for six months. There was a limitation of the ocular rotations in all directions of gaze, not complete but sufficient to cause a constant diplopia. The conjunctiva of the superior cul-de-sac was slightly edematous, with considerable superficial and deep venous congestion, though without pain or tenderness. The superior fornix was full, and the patient had the sensation of tautness in that area. One was easily aware of an orbital mass. The exophthalmos present was wholly incompressible. Visual acuity was unimpaired, and the fundus details were well within the normal. There were no signs or symptoms of any related general physical disease. The x-ray department reported "normal bone" of the orbits.

A tentative diagnosis was made of a malignant lesion of the lacrimal gland. Prior to the orbitotomy, permission was obtained from the patient to proceed with an orbital evisceration should the findings indicate that necessity.

An exploratory orbitotomy, done as the first stage of a classical Krönlein orbitotomy, showed complete involvement throughout the entire orbit, subperiosteal infiltration of a pale gray color, the tissue relatively avascular, with a similar involvement of the lacrimal gland. The periosteum was adherent to the bone, more so than was normal.

Because of the possibility that this was an extensive inflammatory infiltrating disease, tissue was taken from three areas: the lacrimal gland, the floor of the orbit (rather superficial), and the lateral wall of the orbit (this quite deeply removed), all outside of the periorbita. The skin incisions were closed

carefully as though the surgical procedure had been completed.

Four days later the microscopic report was received from the pathologic laboratory (Dr. Perce DeLong). The finding in all sections was "mixed-cell tumor of the lacrimal gland."

An immediate orbitotomy was again done, with a complete exenteration of all orbital contents including the periosteum, the lateral rim of the orbit for a distance posterior to the normal position of the lacrimal gland, and the lacrimal fossa. The skin of the lids was saved to line the cavity, all other soft tissue being resected.

At the time of this presentation the author is considering extensive irradiation therapy of the entire orbit.

Adenocarcinomas, and probably sarcomas, have a course similar to that of mixed cell tumors; but the rapidity of their growth, as measured in exophthalmos, displacement of the eyeball, and diplopia, is of a much shorter duration. It is doubtful whether these neoplasms involve the bone as early in their course. This conjecture is reasonable considering the histopathology of the mixed cell tumor.

No case is on record of bilateral involvement of any neoplastic disease of the lacrimal gland other than lymphoma. Even though the mixed cell tumor is encapsulated in a large and significant percentage of cases, roentgenography early in their course reveals changes in bone density in the fossa of the lacrimal gland. This is so in the primary period, prior to any recurrences, as well as in recurrence later in the course of the disease. The author has seen both possibilities in instances of this disease.

Mixed cell tumors of the lacrimal gland evidence the same pathologic features and microscopic and clinical characteristics as do the mixed cell tumors of the salivary glands. The components show the same variations, that is cytologically, and the same tendency to recur if the entire capsule is not excised. The mixed cell tumor of the lacrimal gland seems, in its growth, somewhat less aggressive than the mixed cell tumor of the salivary glands, and metastases are less frequent. This is due, probably, not to the cellular structure of the tumor itself but because of the position of the neoplasm. The mixed cell tumors of the salivary gland lie free in soft tissues and are not restrained in position by a bony orbit posteriorly and above, and by a rather resistant orbital septum — lid and lid structures diaphragm, anteriorly. It is reasonable that metastasis should occur more readily in the salivary gland tumors. It is this explanation certainly which accounts for Anderson's comment,[1] "The lacrimal gland tumors are less aggressive and metastasize much less frequently than the comparable salivary gland neoplasms."

While the mixed cell tumors are encapsulated, the capsule itself becomes involved with neoplastic cells. They are, therefore, essentially infiltrative, involving the bony lacrimal fossa and the tissues adjacent to it and within the orbit. This infiltrative characteristic was evident most conclusively in one case. At the time of the orbital evisceration, it was necessary to remove, with the tumor mass, bone from the apex of the orbit, a large part of the roof of the orbit, and a portion of the lateral wall of the orbit.

The surgical procedures for these neoplasms are exacting. Quoting Reese,[7] "The surgery as practiced in the past has been entirely inadequate." Extirpation of the entire gland through the lid, even if it is believed that the entire capsule has been removed at the same time, is not sufficient, because that procedure

is anatomically impossible. A simple transpalpebral extirpation done for biopsy and as a temporizing procedure for diagnosis is wholly unjustifiable unless lymphomatous disease is strongly suspected or the physician suspects unilateral adenitis. If such an incomplete extirpation has been done by the anterior route and the histopathologic study shows the neoplasm to be a mixed cell tumor, then one should proceed without delay to a complete exenteration of the orbit, at the same time, being careful to remove the lateral and upper angle of the orbit, including the entire bony lacrimal fossa, with the roof of the orbit posteriorly to the fossa.

Naffziger,[6] in a discussion on the treatment of mixed cell tumor of the lacrimal gland, expressed the opinion that a logical operative approach is by way of a frontal flap so that the entire roof of the orbit can be removed, even including the frontal and ethmoidal sinuses, permitting wide exposure and the removal thereby of any amount of bone from the roof and lateral aspects of the orbit. This was done in one of my cases by a most capable neurosurgeon. The patient died, nevertheless, from intracranial extension. I do not agree with Naffziger regarding the advisability of this procedure.

It is evident that a primary careful extirpation of the lacrimal gland through a lateral, Krönlein-type orbitotomy is my choice for all cases of probable neoplastic disease of the lacrimal gland. The subsequent histologic characteristics of the neoplasm, if that is found, direct the secondary surgical procedures. This practice includes all cases, mixed cell tumors, adenocarcinomas, sarcomas, and the rare lymphomas unfortunately extirpated. If a lateral orbitotomy has been done and the histologic examination proves the lesion to be a mixed cell tumor of the lacrimal gland, then also exenteration should be carried out as a secondary procedure without delay. The absolutely bad prognosis in instances of surgical procedures less radical than this is justification for such an unqualified statement. A Krönlein-type lateral orbitotomy will permit better exposure for radical surgical extirpation than any other procedure except complete exenteration of the orbit. It will permit, as well, any amount of bone resection from lateral and superior surfaces of the orbit thought necessary.

If the histologic diagnosis is that of a neoplasm other than a mixed cell tumor, one may temporize about performing an exenteration. In these instances massive roentgen therapy must follow the gland extirpation. If a recurrence appears, exenteration of the orbit should follow without delay.

In all instances of primary extirpations of the gland, three points are basic: (1) carefully detailed, skilfully done roentgenography of the bony orbits, comparing one orbit with the other; (2) adequate surgical exposure of the lacrimal fossa; and (3) removal of the gland without rupturing the capsule, i.e., removal of the gland with the capsule intact. If preoperative roentgenograms suggest a diagnosis of bone involvement, then it is quite possible that an exenteration, with the removal of the roof and the lateral wall of the orbit, should be the primary surgical procedure. One should not forget that the accessory glands lying in the upper lid also will share in neoplastic involvement; hence, these must be dissected out and removed at the time of the primary operation. In addition, accessory glands may be displaced, even more distantly.

A note regarding roentgen therapy is necessary. Preoperative roentgen therapy is improper and without merit. Irradiation for mixed cell tumor of the lacrimal gland itself is probably com-

pletely valueless. It is true that tumors essentially epithelial may be, to some extent, radium sensitive. This was referred to when discussing cylindroma. I have routinely used heavy roentgen therapy in instances of recurrence of the primary lesion within the exenterated orbit. Reese has reported some success with this procedure; I have not been so fortunate.

Adenocarcinoma reacts similarly insofar as radium sensitivity is concerned. Those tumors predominantly epidermoid do perhaps have some radium sensitivity. Comment has already been made regarding the radium sensitivity and radium curability of the lymphomatous types. The one case of possible round-cell sarcoma seen by the author was treated postoperatively with massive roentgen therapy and has remained up to the present time, a period of somewhat more than two years, still without recurrence.

It is to be regretted that lymphomatous tumors cannot be diagnosed routinely and with certainty in all instances of lymphomatous disease of the lacrimal gland, without the complete removal of the gland, as just outlined. The therapy for this form of neoplasm is definitely not surgical.

The prognosis for these lesions, especially mixed cell tumors and adenocarcinomas, is so bad that one must do radical surgery. As Rubin[9] stated, in effect, the longer one can keep these cases under observation the higher do the mortality rates ascend.

The seriousness of the two lesions depends upon (1) the difficult surgical approach and the necessity for radical surgical intervention; (2) the involvement of the tumor capsule and the invasive tendencies of the neoplasm; (3) the possibility that these tumors, in the primary state, may be lobulated and that one small lobule has not been removed; and (4) the basic irradiation insensitivity of the malignant lesions. I feel that it is quite impossible to consider any mixed cell tumor of the lacrimal gland as a benign lesion. After studying the microscopic sections one may make a guess as to the degree of malignancy present. That can, however, be only a guess and, when made, it is a postoperative one. All cases of mixed cell tumor must be considered, preoperatively, as serious, in terms of degree of malignancy. They are called "benign" probably because expansion of the tumor is limited by its position. Ultimately the growing neoplasm will rupture its capsule, or it will be ruptured equally effectively through surgery. When that occurs the tumor cells proliferate rapidly and extend into the orbit and penetrate into the bone of the orbit, growing along lines of least resistance.

McFarland, as quoted by Rubin,[9] feels that mixed cell tumors recur so frequently after apparently complete removal because many of them are multicentric in development. He means by this that there are several small centers from which the tumor grows, these possibly in close juxtaposition to the larger and more easily recognized mass. Thus they become lobulated.

Under the best of circumstances the mortality rate is pretty close to 50 per cent in all instances of mixed cell tumors. The mortality rate of adenocarcinoma, estimated as best one can from the reports in the literature, cannot be any better, if as good.

SUMMARY

Much has been written relative to tumors of the lacrimal gland. It seems proper to indulge in a summarization of this serious ophthalmologic condition,

hoping that this type of review may help towards the reduction of the high mortality resulting from this form of neoplastic disease. Contradictory statements appearing in the literature do not help this basic problem. Inadequate primary surgical therapy as not uncommonly carried out is certainly a factor, and that statement may be the most important in this presentation.

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DISCUSSION

JOHN WOODWORTH HENDERSON, M.D., Ann Arbor, Michigan: We are all grateful to Dr. Spaeth for redirecting our attention to the continually difficult problem of diagnosis and treatment of tumors of the lacrimal gland and for sharing with us his impressions gained from long and extensive surgical experience. The decisions as to the proper surgical approach, the time for operation, and the extent of surgical intervention indicated for a lacrimal gland tumor trouble all of us. The danger of incomplete removal of a mixed cell tumor through rupture of the capsule and the subsequent tendency to malignancy in the recurrences have been noted, and the necessity of secondary orbital exenteration with removal of neighboring bone has been emphasized. If roentgen evidence of bony involvement is present preoperatively, Dr. Spaeth suggests consideration of exenteration with removal of neighboring bone as a primary procedure.

At the outset it would appear helpful to make comparisons between the grim prognosis for mixed cell tumors of the lacrimal gland and the better outlook for similar parotid gland tumors, since significant differences exist in the reports. At the University Hospital, detailed studies were first carried out by Buxton, Maxwell and Cooper in 1949, and later expanded by Maxwell, Buxton and French in 1952, on a large series of parotid gland tumors. The latter report was presented at a meeting of this Academy. The results indicated a surprising difference in prognosis for parotid gland tumors as compared with our usual conception of lacrimal gland tumors. In the earlier report, out of 110 cases of mixed cell tumors removed surgically, there were only 12 recurrences, or 10.9 per cent. The authors noted further that it was not possible in their study to confirm the commonly held opinion that in each successive recurrence of an excised benign mixed tumor, the tumor characteristics became more malignant. They felt instead that time rather than surgical trauma was more important in the development of such malignant change. In the second series reported, in those patients with a single operation (172), there were only eight patients with recurrence of the neoplasm. A complete review of the pathologic material undertaken for the latter paper resulted in an even greater number of cases being classified as benign, with a final total number of 183 patients with benign mixed cell tumors in a series of 280 cases. Since Dr. Zimmerman is much more qualified than

I to elucidate upon the evident confusion in interpretation of the pathologic findings, I shall not attempt a detailed presentation of the controversy, except to quote from Maxwell, Buxton and French: "There has been much disagreement among pathologists regarding the classification of parotid tumors. Some of them admit readily that there may be a tendency to 'overdiagnose' some of the cellular tumors presenting medullary patterns."

What, then, accounts for the difference in the uniformly poorer survival and recurrence rates reported in mixed tumors of the lacrimal gland and those of the parotid glands? Is it necessarily true that the peculiar anatomic location of the lacrimal gland allows for less complete removal of the tumor mass than is possible of the parotid gland with its associated tissue planes and apparent avenues for metastasis? Reese feels that the difficulty of surgical approach, the tendency to early local invasion into capsule and bone, and perhaps small lobules of tumor left behind are responsible for the much higher recurrence and mortality rate. It has been suggested also that a multicentric origin, unrecognized at the time of the initial operation, contributes to recurrences. Or is the reason for such a difference the difficulty in interpretation of the pathologic sections of the original lesion? Could it be true that there is a much greater incidence of malignancy at the time of the first histologic study than has been previously recognized?

Forrest reported on 26 cases of epithelial tumors of the lacrimal gland at this Academy in 1953. He was able to differentiate pathologically between benign mixed tumors and the group of carcinomas, correlating the survival rates with the pathologic findings. There were 8 cases of benign mixed tumor with adequate follow-up findings, and in this group there was only one significant recurrence noted five years after the initial operation; this recurrence remained localized without treatment for the following fifteen years. Forrest concluded that with complete excision of a demarcated and encapsulated mass, with pathologic examination indicating a benign mixed tumor completely excised, no further treatment is indicated. However, if previous incomplete excision has allowed the tumor to spread, local excision may not be possible, and exenteration will be required. If the original lesion is infiltrative and has involved bone, and if malignant lacrimal gland tumor is found on microscopic study, radical exenteration with excision of involved bone is recommended. It seems possible, then, that it is feasible to group tumors of the lacrimal gland in the same way as has been reported for parotid tumors, and also to correlate such a grouping with the clinical course.

Dr. Spaeth states that preoperative roentgen therapy is improper and without merit, and I hasten to agree with him, with one possible exception. If the examination reveals a tumor mass in the lacrimal gland without evidence of invasion or bony involvement, it is possible to rule out a tumor of the lymphomatous series by a relatively small radiation dosage without surgically disturbing the capsule. Although all good roentgen therapists are adamant against treating any lesion without histologic diagnosis, we have been allowed this one exception in our diagnostic routines for orbital tumor. Usually the blood picture is of little help in such a case, and if rapid regression follows the small roentgen dosage (usually a total of 1000 r measured in air delivered in five doses of 200 r to a lateral field) a presumptive diagnosis may be made and the patient spared an unnecessary operation. One patient in our series had surgical removal of such a tumor on the left side, later recurrence which responded to irradiation, and finally, five years later, involvement of the lacrimal gland on the right side, which also responded to irradiation therapy. Generalized findings of lymphosarcoma commenced three years later, and the patient expired of her disease thirteen years after the original removal of what appeared preoperatively to be a mixed cell tumor of the lacrimal gland. Throughout the entire period she suffered from the effects of a severe keratoconjunctivitis sicca resulting from the original surgical procedure. It is therefore our policy to seek a trial of low-dosage irradiation in orbital tumors in which clear-cut evidence of bony involvement and other specific diagnostic findings are lacking.

It should be noted also that negative findings on roentgen examination of the neighboring bone in lacrimal gland tumors do not necessarily rule out bony involvement. Unfortunately, many ophthalmologists do not have available the guidance of a roentgenologist such as Pfeiffer, and a negative examination in most hands is certainly not conclusive. As Reese notes, palpation may indicate involvement of bone before roentgenograms will demonstrate positive findings. Certainly any suspicious bone should be removed at the time of operation.

Finally, it might be of interest to present a case in which treatment was refused, in order to note the long course which tumors of the lacrimal gland may take. The patient first sought treatment in 1936 with a seven-year history of a slowly growing mass in the right upper lid. It was hard, irregular, although freely moveable, and located in the lacrimal gland. There was no roentgenographic evidence of bony involvement. Surgical intervention was refused by the patient. She was next seen eleven years later, at which time a tremendous mass, measuring 8.5 by 6.0 by 5.5 inches, was present. The globe could not be visualized in the tumor. Roentgenograms indicated probable associated bony changes of the right side of the face and showed calcification or ossification within the mass. On general examination, a pelvic tumor was also noted, probably a uterine sarcoma. There was marked anemia. Again the patient refused surgical intervention, and follow-up by our Social Service Department indicated that the patient expired eight months later. The duration of life from the earliest sign of the tumor was nineteen years.

It was indeed a privilege to discuss this excellent paper, and we shall all benefit from Dr. Spaeth's willingness to share his considerable experience with us.

LORENZ E. ZIMMERMAN, M.D., Washington, D. C.: I shall confine my remarks to that part of Dr. Spaeth's paper which deals with the pathology and prognosis of epithelial tumors of the lacrimal gland. Sarcomas and unequivocally malignant lymphomas arising in the lacrimal gland are so rare that well-documented cases deserve being reported individually. There is, therefore, nothing more that I can say about nonepithelial cancers of the lacrimal gland.

It has been rather widely appreciated that neoplasms of the lacrimal gland have much in common with those of the major salivary glands, benign mixed tumor being the most common variety in each location. I doubt, however, that the preponderance of mixed tumors is nearly as great as the figure quoted by Dr. Spaeth, who said that at least 90 per cent of the neoplasms of the lacrimal gland were of this type. In the past, the diagnosis of "mixed-cell tumor" has been overworked. (Reese[7]) Tumors which are now regarded as frankly carcinomatous—especially the adenocystic variety of adenocarcinoma—formerly were lumped with the mixed tumors of the lacrimal gland. Furthermore, the mixed tumor group has now been subdivided into benign and malignant types. Thus we have three main groups of neoplasms of the lacrimal gland: benign mixed tumors, malignant mixed tumors, and carcinomas unrelated to mixed tumors.

This classification follows that of Foote and Frazell (Atlas of Tumor Pathology, Washington, D. C., Armed Forces Institute of Pathology, 1954), who as a result of their vast experience at the Memorial Hospital in New York published an excellent monograph on the pathology of salivary gland tumors. Reese (Am. J. Ophth., 41:3-11, 1956) has already applied the classification made by Foote and Frazell to lacrimal gland tumors, and very recently I employed it in a quick review of the Registry material.

I would like to show you the result of this survey and to compare my data with those of Reese, which were based partly on his own cases and partly on those in the literature. Of the 80 cases I reviewed, only 39 (49 per cent) were considered benign mixed tumors (table I). The remaining tumors were considered malignant. Here we should say a word as to what we mean by the terms *benign and malignant* in relation to these neoplasms. Benign mixed tumors are called benign because their histologic and cytologic characteristics are not those of a metastasizing tumor. They are not entirely benign in their behavior, however, because they are infiltrative and they will penetrate adjacent tissues, including bone, especially after incomplete excision. The malignant mixed tumors contain areas in which the neoplastic tissue ap-

TABLE I

LACRIMAL GLAND TUMORS*

	CASES	PER CENT
Benign Mixed	39	49
Malignant Mixed	13	16
Other Carcinomas	28	35
Totals	80	100

*Registry of Ophthalmic Pathology, AFIP

pears frankly carcinomatous and is believed capable of metastasizing via blood stream or lymphatics. Under the heading of "other carcinomas" we see a variety of histologic types which are unrelated to mixed tumors; the most frequent is the adenocystic carcinoma.

TABLE II

EPITHELIAL TUMORS OF LACRIMAL GLAND

	REGISTRY* PER CENT	REESE PER CENT
Benign Mixed	49	43
Malignant Mixed	16	4
Other Malignant	35	53
Totals	100	100

*Registry of Ophthalmic Pathology, AFIP

Table II reveals the similarity of the distribution of cases in the Registry to the statistics published by Reese. You see that less than half the epithelial tumors are benign mixed tumors. It is for this reason that I previously questioned the 90 per cent figure mentioned by Dr. Spaeth. This is not a minor point of mere academic interest, for the prognosis and therapy of lacrimal gland tumors is entirely dependent upon accurate pathologic diagnosis, a point which has been emphasized by Reese.

To illustrate, I want to show you the results of my recent survey of the Registry cases (table III). There were 17 "tumor deaths," and none of these were from benign mixed tumors. In fact, only 2 were considered to be malignant mixed tumors. All others were carcinomas unrelated to mixed tumors. Likewise, among the living patients who had had recurrences, only 4 of 10 had benign mixed tumors. On the other hand, 12 of the 16 patients who were living and well with no history of recurrence (six to twenty-one years after operation) had had benign mixed tumors. These data are much more encouraging than those previously published, and they serve to emphasize the practical importance of adequate pathologic study. In my opinion it should be emphasized that *the benign mixed tumor, completely extirpated with its capsule unbroken, carries a very favorable prognosis.*

What, then, can I say about surgical management? First, I would insist that this is not a surgical emergency. The problem must be attacked with a well-conceived plan. The patient and his family should be advised that even after a complete preoperative "work-up," the definitive diagnosis cannot be made until a specimen is obtained for histopathologic diagnosis. They should be advised also that the extent of surgical intervention required to cope properly with the situation must await definitive diagnosis, but permission should be obtained to do whatever procedure is deemed necessary at the time of initial exploration.

TABLE III

LACRIMAL GLAND TUMORS*

FOLLOW-UP STATUS	TOTAL	BENIGN MIXED	MALIGNANT MIXED	CARCINOMA
Living and well	16	12	3	1
Living (history of recurrence)	10	4	3	3
Tumor Deaths	17	0	2	15
Indeterminate	37	23	5	9
Totals	80	39	13	28

*Registry of Ophthalmic Pathology, AFIP

A very important part of the preoperative planning procedure is consultation with radiologists and with the surgical pathologist. Dr. Spaeth has already emphasized the need for radiologic study. I want to emphasize the advisability of consultation between the ophthalmic surgeon and the surgical pathologist well in advance of the time of surgery. Many pathologists have not been faced with the special problems presented by lacrimal gland tumors. It is most important that they realize that their job here is not only to make a diagnosis but also to help decide upon the extent of surgical excision required.

The first major decision is whether to take a deep wedge of tissue for histopathologic diagnosis, as advocated by Dr. Reese, or whether the initial procedure should be complete extirpation of the gland with its capsule intact, as Dr. Spaeth has suggested here today. From the purely idealistic viewpoint of an oncologist, I would have to agree with the procedure of complete extirpation without prior biopsy, as advocated by Dr. Spaeth. Although Dr. Reese says one should obtain a deep wedge of tissue "using precautions not to disseminate any of the tissue cells," I must confess ignorance as to how this is really accomplished. On the other hand, I am aware of Dr. Reese's well-founded reasons for not going ahead with complete extirpation from the outset. He has found that in about one half of the cases the diagnosis will be either granuloma or lymphoma, and radical excision will not be required; hence, his insistence on a biopsy diagnosis before extirpation.

Finally, before closing I would like to take issue with Dr. Spaeth's suggestion that after complete extirpation of a mixed tumor, it is still necessary to go ahead with exenteration. In my opinion, if the surgeon has done a good job of removing the tumor with its capsule intact, along with any areas of suspected bone involvement, and if the surgical pathologist after careful gross and microscopic examination pronounces the lesion a "benign mixed tumor, completely excised, with capsule intact," then I believe the patient has been cured and no further surgical intervention is indicated.

It has been a pleasure to participate in this discussion of a lacrimal gland problem which, as Al Reese has said, is "crying for revision."

DR. SPAETH. I wish to thank the two discussers for valuable addition to this presentation. It is rather interesting that there should be so much difference of opinion between experiences of clinician and pathologist. There can be nothing more conclusive than that of "a death from the basic condition." A benign lesion is NOT one causing death by recurrence, by extension, and/or metastases. There is no question as to the high incidence of such deaths from mixed cell tumors of the lacrimal gland—as these cases are continued under observation. Because this is true, the surgical treatment of these cases must be that which might prevent deaths in the largest number of instances.

EFFECT OF PARASYMPATHETIC STIMULATION ON THE ANTERIOR SEGMENT OF THE CAT'S EYE

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BY INVITATION

THE intimate relationship between the ciliary muscle and iris, on the one hand, and the structures forming the chamber angle, on the other, has for decades stimulated active curiosity as to the possible effect of ciliary and iris muscle contraction on the arrangement of the structures forming the chamber angle and the resulting effect on the dynamics of aqueous humor. However, opinions on this matter as well as experimental results have not been uniform.

In over 250 experiments conducted by the author on anesthetized cats as well as on enucleated cats' eyes, a preparation was used wherein the orbital parasympathetic pathway was thoroughly isolated so that stimulation of this pathway produced exclusively intraocular effects.[1]

Under these experimental conditions stimulation of the orbital parasympathetic pathway produced a marked reduction in the resistance to outflow in the intact animal as well as in the enucleated eye. The increase in the facility of outflow during stimulation ranged from 50 per cent to 250 per cent and was independent of the change in pupil size during stimulation.

This preparation offered an ideal opportunity to study the effect of parasympathetic stimulation on the anterior segment of the cat's eye by direct visualization of these structures with the high magnification of the slit lamp with or without the help of the gonioprism. The absence of eye movement during stimulation made it possible to record the movements of the intraocular structures on a colored motion picture film from which valid comparative measurements could be made of the anatomic characteristics of the structures before and during stimulation.

A study of histologic sections provided a representative picture of the anatomy of the anterior segment of the cat's eye. An attempt will be made in this presentation to elaborate on the functional possibilities of the various anatomic findings in an effort to explain the marked increase in facility of outflow on stimulation of the orbital parasympathetic pathway.

MICROSCOPIC ANATOMY

A large number of transverse sections selected from eyes of six cats were examined after staining with hematoxylin and eosin as well as with Mallory stain. Relatively small variations were encountered from eye to eye in the characteristics of the structures considered in this study. A "composite representative" cross section is presented (fig. 1) to show the various structures and their relationship.

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Results of this work were presented at the meeting of the Midwestern Section of the Association for Research in Ophthalmology in St. Louis, Missouri, April 19, 1958.

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Presented at the Sixty-Third Annual Session of the American Academy of Ophthalmology and Otolaryngology, Oct. 12-17, 1958, Chicago.

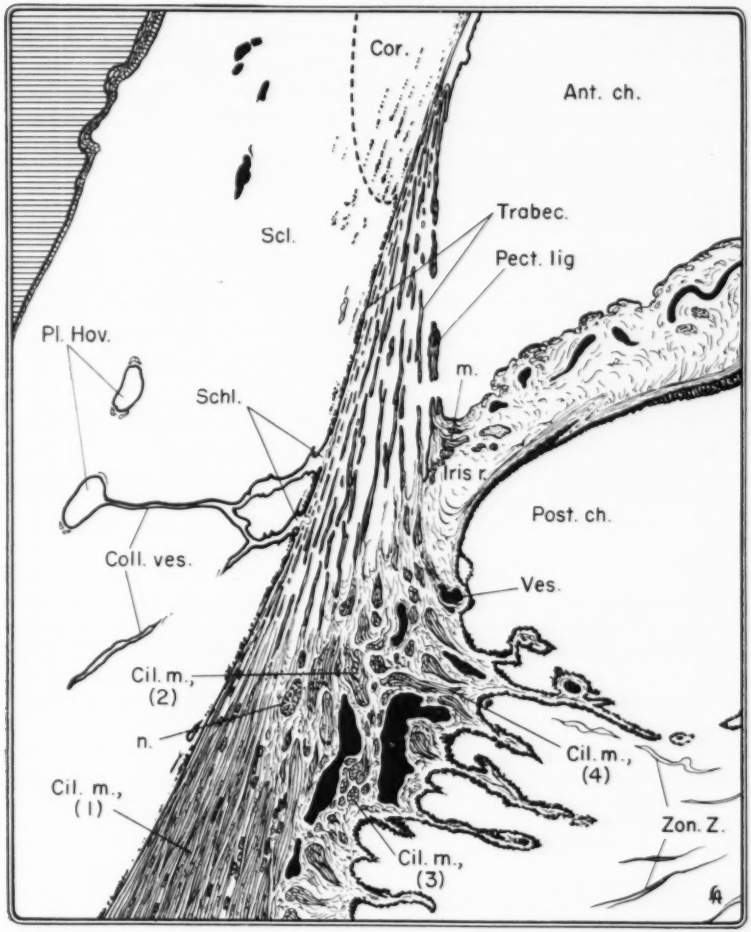

FIG. 1—The anterior segment of the cat's eye in transverse section drawn as a "composite representative" section of a large number of transverse sections of various eyes. Ant. ch., Anterior chamber; Cil. m. (1), Meridional Fibers; Cil. m. (2), Intermediate Fibers; Cil. m. (3), Circular Fibers; Cil. m. (4), Internal Fibers; Coll. ves., Collector vessel; Cor., Cornea; Iris r., Iris Root; M., Muscle; Pect. lig., Pectinate ligament; Pl. Hov., Plexus of Hovius; Post. ch., Posterior chamber; Schl., Canal of Schlemm; Scl., Sclera; Trabec., Trabeculum; Ves., Blood vessel; Zon., Z., Zonule of Zinn.

The Ciliary Muscle

The fibers of this muscle could be subdivided on the basis of their direction as depicted in transverse sections into four distinct groups.

The first and most external group (Cil. m., 1) was the meridional fibers: these were directed anteroposteriorly and sectioned longitudinally in these preparations. Anteriorly, these fibers could be seen to have intimate attachment to the sclera laterally, and to the external group of trabecular fibers immediately adjacent to the canal of Schlemm anteriorly. Through these fibers the muscle gains attachment to the sclera surrounding the site of Schlemm's canal as well as to a more forward location on the sclera reaching the cornea and Schwalbe's ring.

The second group lies medial and slightly forward to the first (Cil. m., 2), and its fibers appear as an oblong bundle containing a mixture of longitudinally as well as transversely cut fibers. To these fibers the intermediate group of trabecular fibers could be traced.

The third group (Cil. m., 3) was located medial and forward to the second. Its bundles were circular in outline and were composed of transversely cut fibers which can be properly called circular fibers. To these the more internal group of trabecular fibers could be traced.

The fourth group (Cil. m., 4) was the most internally located; it was situated just lateral to the ciliary epithelium and the bases of the ciliary processes. Their direction was parallel to that of the ciliary processes and perpendicular to the meridional fibers. No continuity was seen in any cross section between this group and any of the previously mentioned groups. A study of serial sections to determine their relationship to groups 2 and 3 is in progress.

These fibers present a very interesting possibility, since they are intimately related to the bases of the ciliary processes and attachments of the zonular fibers, and their contraction produces an effect on the lens and refraction opposite to that produced by the rest of the ciliary muscle fibers.

The Chamber Angle

In the cat, the anterior boundary of the ciliary muscle forms an obtuse angle at the sclera, thus making a large portion of the angle, including the openings of the canal of Schlemm, occupy a more recessed plane than that of the iris insertion to the anterior tip of the ciliary muscle.

The fibrillar meshwork contained in this angle has a triangular arrangement converging towards an apex at the ring of Schwalbe and diverging towards the wider base of insertion into the ciliary muscle fibers described previously. In order to avoid confusion, the term pectinate ligament is reserved for those fibers that insert into the iris proper. In the cat, only one row of widely dispersed fibers is seen connecting the cornea to the iris root. All those lateral to this fiber in cross section insert into the ciliary body and would be called trabecular fibers. On rare occasions two pectinate ligament fibers were seen in one transverse section.

This point is of the utmost importance, since gonioscopically and in the motion picture one can see as many as five rows of fibers placed lateral to one another; of these, only one is connected to the iris root; the rest insert into the ciliary muscle and reflect its activity.

The trabecular fibers, in general, have an interrupted course, or "holes," in a transverse section; so that this meshwork when observed from the anterior chamber would best be described as com-

posed of fenestrated circular sheets in which the fibers form the framework. These fenestrated sheets are arranged one lateral to the other following the general layout of the fibers seen in cross sections; the fenestrations of one sheet are not uniform in size but are larger towards the base. The openings of one sheet are not superimposed on openings of the one adjacent to it; and fibers of one sheet are superimposed on interfibrillary spaces of the other.

sheets from each other; the smaller the distance, the greater the resistance to outflow and vice versa (fig. 3).

This mechanism is effective among sheets as well as between the most external sheet and the apertures of the canal of Schlemm.

The canal of Schlemm, in a transverse section, has two openings toward the anterior chamber; channels proceed in-

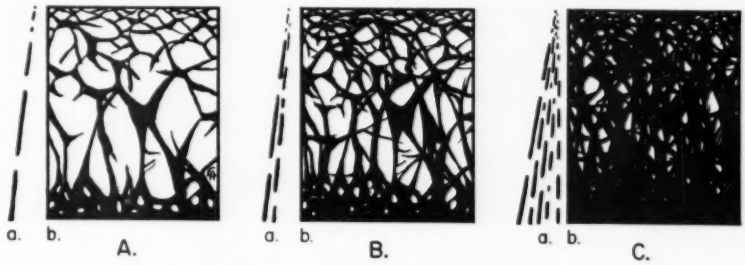

FIG. 2—The effect of imperfect superimposition of layers of a fenestrated pattern in reducing the size of the final effective pore.

A. A pattern drawn to simulate the appearance of any one sheet of trabecular fibers: upper end represents the anterior or corneal extremity, the lower the posterior or uveal extremity.
a. Represents a transverse section of the sheet appearing as a fiber with a discontinuous course.
b. Represents the front view of the sheet seen from the anterior chamber.

B. The same pattern in A is superimposed once on itself with a slight lateral discrepancy in apposition.
a. The appearance of the result in a transverse section.
b. The appearance of the result in a front view; note the reduction in the size of the "final aperture."

C. The same maneuver as in B repeated five times. The result shown in transverse section in (a) and front view in (b). Note the marked reduction in the porosity of the resulting pattern as compared with A.
The trabecular meshwork in the cat is composed of an average of 10 to 12 rows.

This arrangement markedly potentiates the ability of the meshwork to offer a resistance greater than that which can be expected on the basis of the size of the pore in any one sheet. Since fluid has to traverse all layers, the "effective" pore is that which results from imperfect superimposition of the unequal pores of the various laterally placed sheets (fig. 2).

It also introduces another dimension, namely the lateral displacement of the

dependently from each one and unite with a collector channel which in turn connects with the circular plexus of Hovius. Of interest here is the absence of a well formed scleral spur; instead, the canal is completely and uniformly enclosed in scleral tissue. Another point of interest is that the intrascleral canals leaving the canal of Schlemm follow an oblique posterolateral course.

This arrangement of the trabecular meshwork, Schlemm's canal and collec-

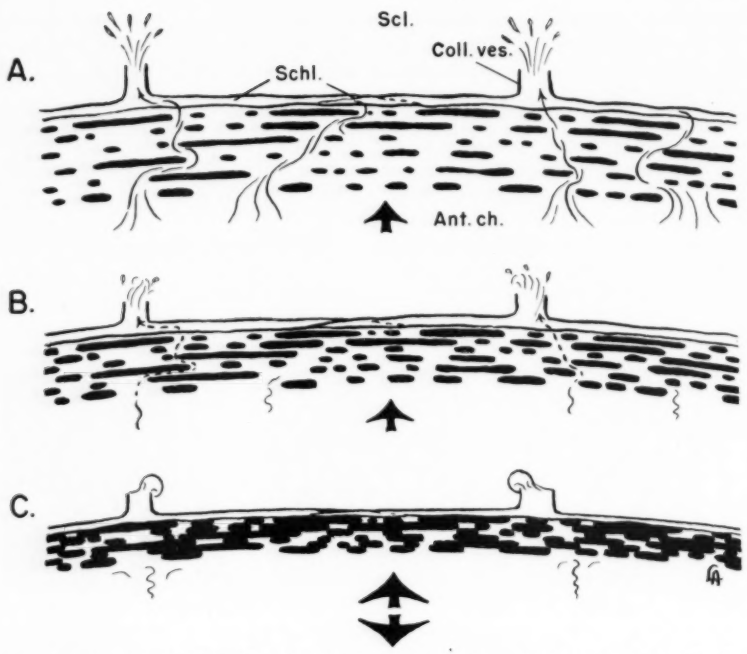

FIG. 3—The effect of compression and reduction of the lateral distance between trabecular fiber sheets on the "porosity" of the meshwork. Compression is shown by arrows indicating the magnitude of intraocular pressure. The interrupted lines traversing the meshwork indicate the sinuous course that fluid must take to reach the canal of Schlemm and brings out the importance of the lateral distance between two adjacent sheets. A, B and C illustrate the increasing compression and the resistance with increasing intraocular pressure.

tor vessels, makes the resistance offered by this pathway subject to compression so that it is increased by factors favoring compression; such as increased intraocular pressure,[2] reduced trabecular fiber tension, reduced lateral separation of these fibers and increased scleral tension; and reduced by factors that increase the resistance of this pathway to compression.

PARASYMPATHETIC EFFECTS ON MORPHOLOGY

When the preganglionic trunk to the ciliary ganglion is cut, eliminating the central connection of the parasympathetics, the following changes are observed:

The pupil dilates from a vertical slit to a circular aperture 8-10 mm. in diameter.

The iris becomes crowded in the periphery of the chamber reducing the length of the visible trabecular fibers. The anterior surface of the lens becomes less convex at the center and recedes backwards increasing the distance between the posterior surface of the cornea and the central portion of the anterior surface of the lens by 2 to 3 mm., as estimated with the help of the Goldmann slit lamp.

This maneuver is also accompanied by a reduction in the facility of outflow by 15 to 30 per cent.

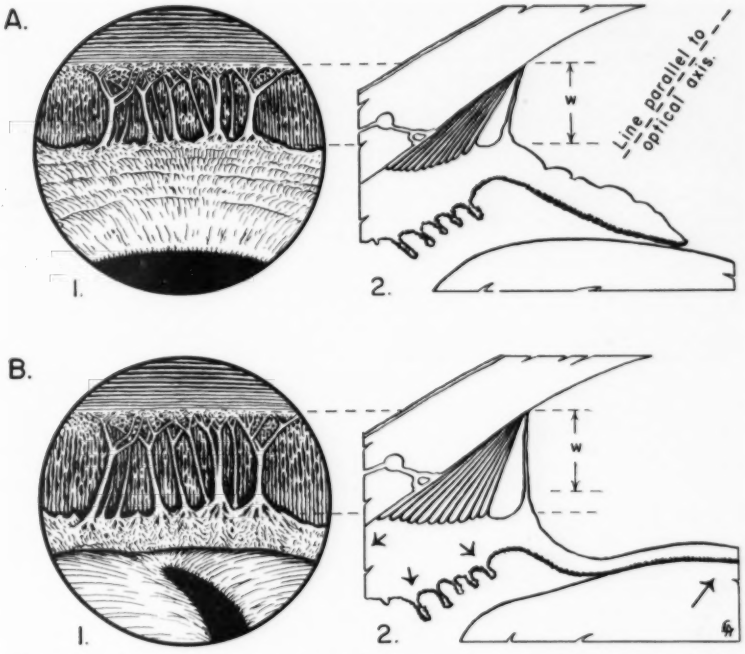

FIG. 4—A schematic representation of the effect of parasympathetic stimulation on the chamber angle as it appears gonioscopically and in the motion picture generalized to include all the meshwork fibers and the intrascleral canals. A, Before stimulation; B, During stimulation.

Note the increase in length of individual fibers, appearance of mounds of uveal tissue at their bases indicative of increased tension in these fibers; also the increase in the lateral distance between adjacent sheets due to the medial displacement of their bases by the effect of the circular component of the ciliary muscle.

Note the backward displacement of the ciliary body-iris attachment area in contrast to the bulging forward of the central part of the lens with the covering iris.

If, now an electric stimulus is applied to the ciliary ganglion, the following changes can be seen:

The pupil constricts from the dilated position.

The lens undergoes marked forward bulging of the central 6 mm. of its anterior surface with marked increase in the convexity of this surface and a marked reduction in the depth of the central portion of the chamber to one third or one fourth of the depth before stimulation. This is accompanied by an increase in the refractive power of 5 to 6 diopters.

The constricting iris leaf follows the contour of the bulging anterior surface of the lens and assumes the shape of a truncated cone whose apex is at the pupil and its base at the junction between the central three fourths and the outer one fourth of the iris. The height of this cone approaches 2 to 3 mm.

The peripheral one fourth including the ciliary body-iris attachment area undergoes a simultaneous forceful back-

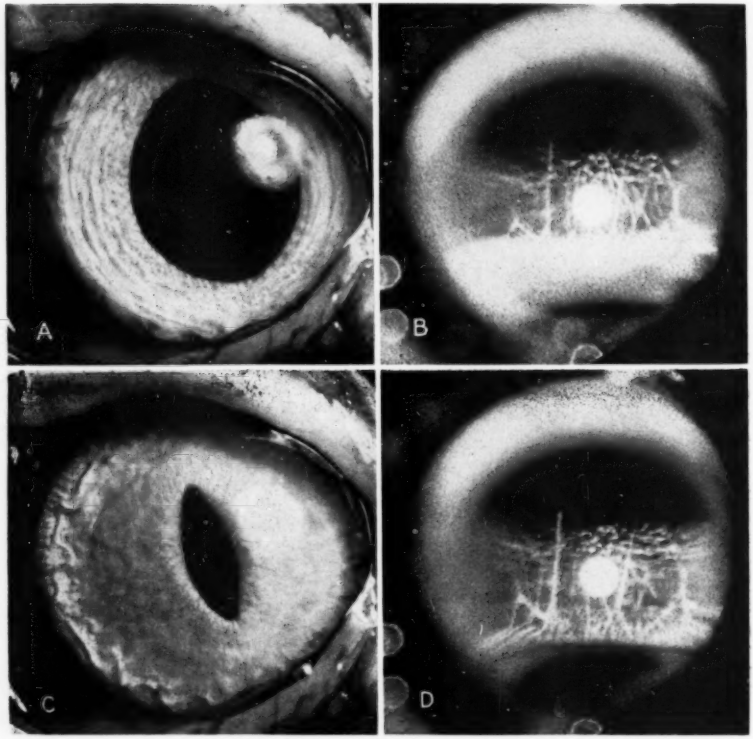

FIG. 5—The eye and chamber angle before and during stimulation taken from the motion picture. A and C are front views; B and D show the appearance of the same fibers before and during stimulation. All these sets were taken without a change in the position of the eye or the camera before or during stimulation, as can be verified by comparing the various landmarks seen in the photographs; hence, they represent valid comparisons.

Comparing A and C one observes the constricted pupil as well as the change in plane between the peripheral one fourth and the central three fourths of the iris, the latter being more forward during stimulation in C. In addition trabecular and pectinate ligament fibers become visible in C as a result of the medial displacement so that the serrations and mounds of uveal tissue at their bases, not visible before stimulation in A become visible during stimulation in C.

By comparing B and D one can demonstrate the backward pull of the ciliary body-iris attachment area by comparing the distance between them and the edge of the light reflex before in B and during stimulation in D.

Also by comparing the length of the same fiber in B and in D one can demonstrate an actual increase in length in D.

Note how the entire picture becomes more lacy with larger spaces in D and the ability to distinguish more rows of fibers in D than in B indicating an increase in the lateral separation of these sheets as well as an increase in the "porosity" of the meshwork.

ward displacement and appears as a concave circular trough 2 to 3 mm. wide and 1 to 2 mm. deep; thus causing a marked increase in the depth of the chamber angle and the periphery of the anterior chamber (fig. 4). This forceful recession of the ciliary body-iris attachment area continued to occur when the stimulation produced minimal pupillary response and marked refractive changes, and when stimulation was applied after the pupil had been constricted to a slit by perfusing the anterior chamber with pilocarpine. This indicated that this re-

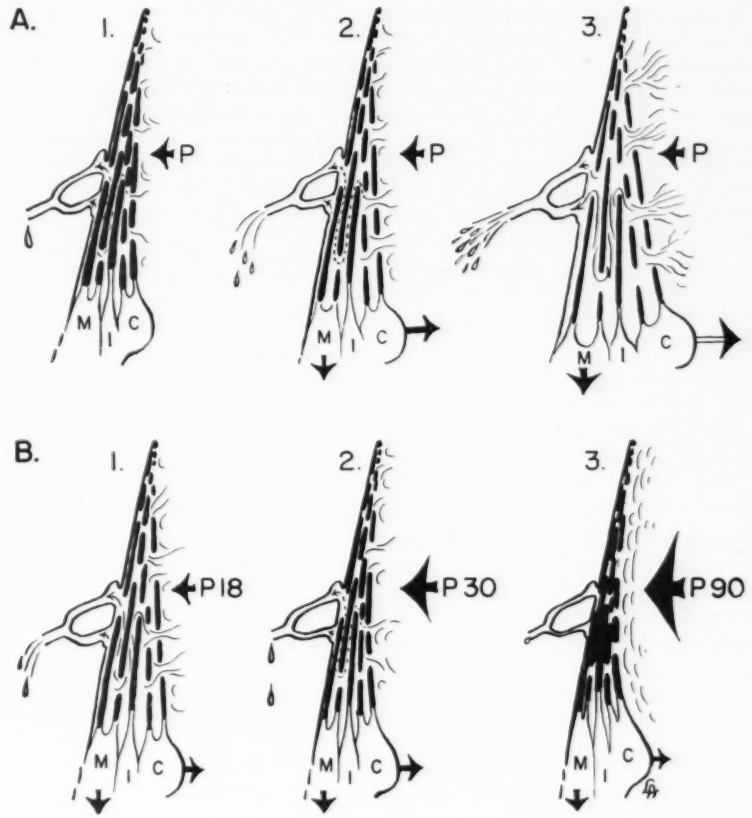

FIG. 6—A schematic representation of the effect of the parasympathetic stimulation on the appearance and inferred resistance of the meshwork, canal of Schlemm and intrascleral vessels to interpret the results of perfusion experiments. A. For a given intraocular pressure. (P) an increase in intensity of parasympathetic stimulation increases the reduction of the resistance to outflow. B. For the same intensity of stimulation, an increase in intraocular pressure reduces the effect of this stimulation in reducing the resistance to outflow.

cession of the ciliary body-iris attachment was independent of the pupillary response.

The pectinate ligament as well as the trabecular fibers undergo marked changes, too. Three to five rows of fibers can be seen lateral to one another with the help of the gonioscope.

During stimulation, an increase in the visible length of each individual fiber accompanies the recession of the ciliary muscle-iris insertion area (fig. 5). Together with this, an increase in the tension in these fibers becomes evident by the development of a conical mound of ciliary body and iris tissue with the fiber inserting at its apex, while the rest

of uveal tissue undergoes the backward displacement. In addition a medial displacement of these fibers becomes visible so that the lateral distance between adjacent sets of fibers becomes more; at times this resulted in being able to distinguish one or more additional rows which were not visible before. This movement is best seen at the base of attachment of the trabecular fibers where it is most exaggerated. It gives the impression of fanning out of these fibers around the point of attachment to the cornea.

These observations establish, beyond doubt, that the trabecular fibers in the cat are truly the tendon of the ciliary muscle and that contraction of this muscle pulls backwards and medially the fibers of this meshwork.

The combined action of the meridional and circular fibers (fig. 6) produces an increase in the depth of the chamber angle and in the tension and length of the trabecular fibers; this favors an increase in the size of the "holes," including the apertures of the canal of Schlemm. Their action also increases the lateral separation of these fiber sheets and the protection of the oblique intrascleral channels from compression by pulling on the attachment of the muscle to the sclera in that region.

All these effects of ciliary muscle contraction are capable of reducing the resistance to outflow and offer some explanation of the experimental results found in these studies where stimulation of the orbital parasympathetic pathway produced a marked increase in the facility of outflow.

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EXTENSIVE RESECTION OF THE TRACHEA FOR CANCER

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BY INVITATION

THE surgical treatment of malignant tumors of the trachea has been limited because of difficulties in reconstruction of a satisfactory airway. Many methods for replacement and reconstruction of the trachea have been evaluated experimentally, and some have found limited application clinically. Whenever possible, the ideal method for reconstructing the trachea is by primary anastomosis. Surprisingly large defects can be bridged by mobilizing the remaining tracheal segments. Even though anastomoses are made under tension, healing will occur.[1] Unfortunately this method of reconstructing the trachea is often not feasible because of the necessity of sacrificing major segments of the trachea and the larynx. Rigid and semirigid tubes of metal or plastic, and wire and wire mesh supporting fascia lata or skin have been used to replace the trachea.[2-8] Some of the results obtained by these techniques have been excellent, but, particularly where extensive resections of the trachea are necessary, no currently available technique is entirely satisfactory.

There are two major problems. First, the malignant lesion must be adequately removed, and the regional lymphatic drainage and adjacent structures that might be involved should also be excised *en bloc*. For epidermoid carcinoma arising in the trachea, this should include the paratracheal lymph channels and nodes, the thymus gland, often the thyroid, and sometimes the cervical lymph drainage. The second aspect concerns the reconstruction of a satisfactory airway. A tubular conduit which is airtight and will not collapse when subjected to negative intrathoracic pressure must be provided. A means of tracheobronchial cleansing is necessary, and healing without stricture formation or chronic infection is an additional requisite of a satisfactory operation. At present there is no completely satisfactory method of accomplishing these ends.

As a partial fulfillment of these objectives, a technique has been developed which allows subtotal resection of the trachea with re-establishment of the airway through a sternal tracheostomy. The manner in which this is accomplished is described and illustrated, along with a modification for a more radical excision of the upper trachea in conjunction wtih laryngectomy. This operation has been carried out on two patients with primary epidermoid carcinoma of the trachea and on two patients with recurrent carcinoma of the larynx in end tracheostomies. The details of these cases have been reported previously.[9] There was one postoperative fatality, and the death of another patient five months after operation is attributed to complications arising from the operation. This experience, although brief, has demonstrated the technical feasibility of radical tracheal resection and reconstruction by means of skin tubes passing through the mediastinum. The effectiveness of this surgical approach to the problem of control of cancer of the trachea remains to be evaluated.

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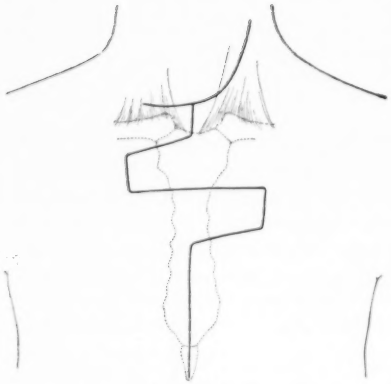

FIG. 1—Incisions for skin flaps, exposure of sternum and the structures of the neck.

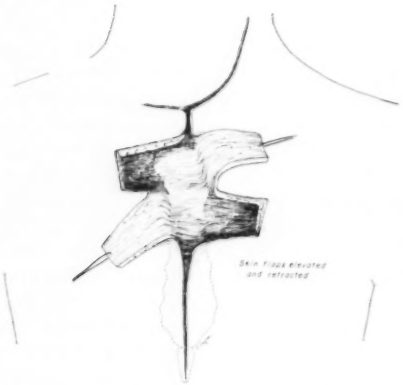

FIG. 2—Skin flaps elevated and retracted.

TECHNIQUE

The procedure is carried out with the patient recumbent and the neck extended. The skin incisions (fig. 1) are planned to provide for the elevation of full thickness, crossed skin flaps from the anterior chest wall (fig. 2), which can be utilized to form a tube that will pass through the sternum and will anastomose to the tracheal stump at any level down to the carina (figs. 4, 5 and 6). The skin flaps are raised with a layer of subcutaneous fat to ensure adequate blood supply. The elevated flaps are carefully retracted by sutures rather than by forceps, and the raw surfaces are protected with moist gauze. Their preparation early in the operation allows a long period for recovery and observation. The edges must be completely viable with active blood flow if successful healing between the tube created from them and the trachea is to be expected. The possible need of such flaps must be anticipated, because a midline skin incision over the sternum precludes the use of this method of reconstruction. If the clinical situation warrants, the skin flaps can be sutured back in their bed to allow development of maximal collateral circulation. After an appropriate interval, they can be raised again and the definitive procedure carried out.

The structures of the neck are exposed through a standard collar incision with upward extensions either on the right or left, as judged by the position of the tumor and the need for exposure. The operability of the lesion is determined. Various types of upper mediastinal and neck dissections can be carried out depending upon the type of tumor, the involvement of organs adjacent to the trachea, and the presence of metastases. For subglottic and upper tracheal carcinomas we feel that bilateral radical neck dissection with preservation of the right jugular vein is indicated, sparing some thyroid tissue and at least one parathyroid gland if possible.

The intrathoracic portion of the trachea and surrounding structures are exposed through a midline sternotomy which is extended down about three fourths of the distance to the xiphoid. The left innominate vein is divided (fig. 3). The pleura is pushed away from the mediastinal structures by gentle blunt

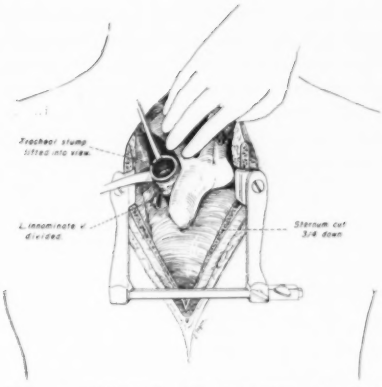

FIG. 3—Mediastinal dissection after resection of trachea and larynx and displacement of remaining trachea to the right of the aortic arch and innominate artery.

dissection. Inadvertent openings in the pleura should be closed. Peritracheal lymphatics, the thymus gland, and a variable amount of fat can be removed from the level of the aortic arch upward. The esophagus can be removed if necessary.

Following the exposure and dissection of the involved portion of the trachea, it is transected at an appropriate level and intubated with a sterile, cuffed endotracheal tube which is passed across the operative field to the anesthetist. Care should be taken to minimize the possibility of direct implantation of tumor cells. When amputation of the trachea near the carina is anticipated, a double lumen tube for insertion into each mainstem bronchus may be needed. The proximal trachea, larynx and contiguous structures are then removed. The pharynx is closed with three layers of fine interrupted silk sutures.

The configuration of the aortic arch and the shape of the chest will determine the manner in which the tracheal stump is brought forward. With a short segment of trachea above the carina, displacement to the right of the innominate artery and to the right of the aortic arch will provide a more direct route anteriorly (figs. 3, 4, 5 and 6), whereas with longer segments of trachea, it may be preferable to bring the trachea above the arch between the innominate artery and the left carotid artery.

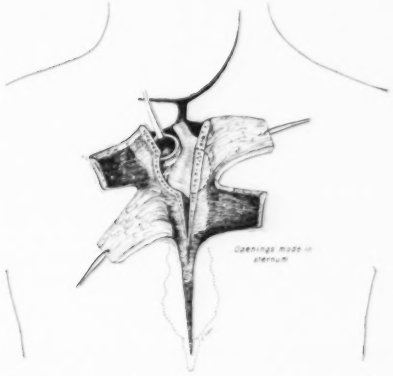

FIG. 4—Hole rongeured in sternum to accommodate skin flaps to be fashioned into a tube. The tracheal stump is drawn forward and to the right of the ascending aorta.

The suturing of the crossed skin flaps to form a tube which will reach down into the mediastinum is illustrated in figure 5. The superior and inferior closure of the tube is made with two layers of fine catgut, the outer approximating the subcutaneous fat and the inner, the skin edges. At an appropriate site, a hole is rongeured in the sternum to accommodate the skin tube (fig. 4). This should be large enough so that the inlying plastic tube which will be used subsequently will not cause pressure. The end of the skin tube is sutured to the cut end of the trachea with closely placed silk sutures. These sutures engage the tracheal ring adjacent to the anastomosis, since regardless of the length of the skin tube and the trachea, some tension is unavoidable in order to hold the trachea forward. The cut edges of the sternum are

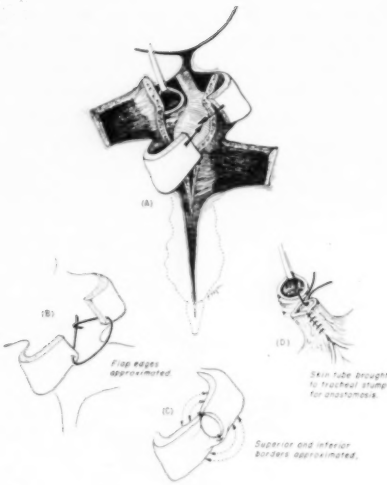

FIG. 5—A, B, C—Method of suturing skin flap to form a tube. D—Suturing skin tube to trachea. The sutures are tied on the outside.

approximated with heavy steel-wire sutures. Linear closure of the skin defects on the anterior chest wall is accomplished by undermining laterally to provide relaxation (fig. 6). Skin grafts may be necessary. Complete skin closure is important; sepsis, if once established, can involve the huge operative area and may be fatal. The funnel-shaped opening of the sternal tracheostomy permits direct drainage of superficial exudation from raw areas into the carina and is a potential source of pulmonary infection which may complicate convalescence. A catheter is brought from the mediastinum through the suprasternal notch, and gentle suction is applied for twenty-four hours to evacuate blood and serum. Following removal of the cuffed endotracheal tube, a plastic semirigid endotracheal tube is inserted. Except for brief periods, a tube of this sort is worn permanently thereafter.

Successful postoperative care of these patients requires constant nursing attention and frequent observation by the surgeon. In contrast to the usual endotracheostomy above the sternum, the skin-lined tube sutured to the lower trachea fails to propel mucus to the external stoma by ciliary motion. The skin tube is dry compared to the normal moist mucous membrane of the trachea; despite humidification of the inspired air, there may be inspissation and accumulation of dried mucus about the anastomosis and at the carina, which requires removal with forceps. Bronchoscopy, easily carried out, has been necessary in three of our four cases. After healing of the anastomosis, the problem of removal of secretions and maintenance of a clear airway lessens and then disappears. The improvement seems to accompany healing of the anastomosis, accommodation of the bronchial mucosa to dry air, control of infection, and, most important, disappearance of the cough reflex and the appearance of a new type of expulsive effort that the patients describe as "blowing." It has been ob-

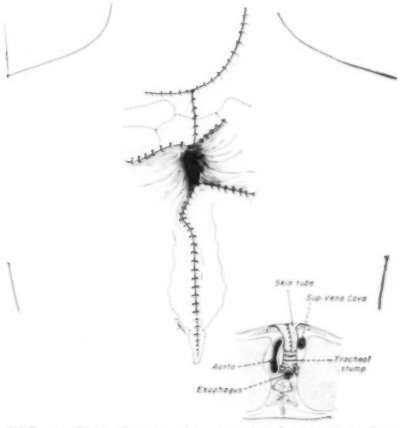

FIG. 6—Skin closure after completed operation showing skin flaps forming a tube which passes through the sternum and mediastinum. Insert diagrams the relationship of trachea and skin tube to mediastinal structures as shown in a coronal section viewed from above.

served that the cough reflex initiated by pharyngeal or bronchial catheterization is much less effective than the more prolonged type of voluntary "blowing" learned after a few weeks by the patient.

Enzymatic debridement of dried crusts has been attempted, using papain and streptokinase-streptodornase without success. Prevention of drying is more effective. Aleovaire seems to be a useful adjunct. Immediately after operation, some type of atomizer is incorporated into the oxygen supply system to provide as high humidification as possible. Later, when the patient is ambulatory, a moistened sponge over the opening may be necessary for weeks or months.

Modification of Technique to Allow More Adequate Tracheal Resection with Laryngectomy

In the surgical treatment of subglottic carcinoma of the larynx, it is sometimes desirable to excise the upper portion of the trachea in order to obtain an adequate margin of normal tissue below the tumor. In most subjects this can be accomplished without any subsequent difficulty in the establishment of an endotracheostomy. However, in an occasional patient with a short neck, excision of the upper two, three or four tracheal rings places the transection of the trachea in the upper mediastinum so that the usual tracheostomy is not possible. It is suggested that a modification of the technique described above will allow reconstruction of the airway after transection of the trachea at whatever level is indicated. Fortunately, the usual U-shaped incision for laryngectomy does not interfere with the blood supply to the skin inferiorly, so crossed skin flaps can be constructed to form a skin tube which will pass through the suprasternal notch for anastomosis to the trachea. It may be necessary to resect the manubrium and the medial ends of the clavicles (figs. 7-10).

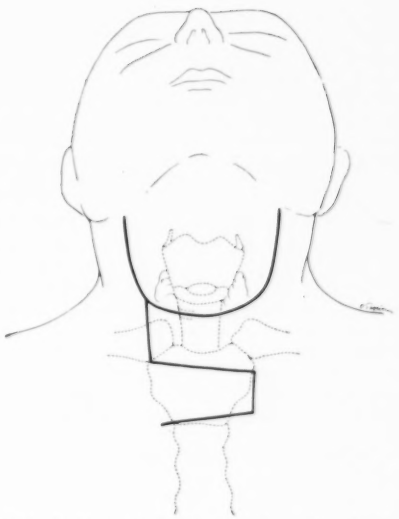

FIG. 7—Lines of incisions for formation of skin flaps and laryngectomy.

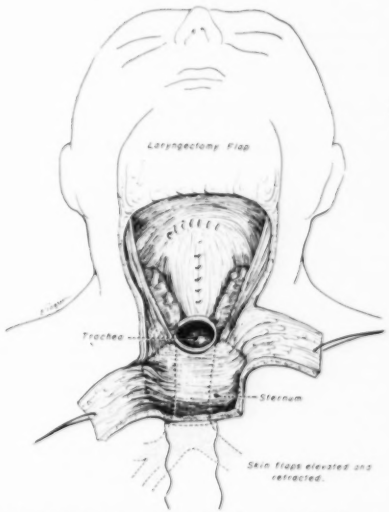

FIG. 8—Skin flaps elevated and retracted prior to formation of tube. The larynx and upper trachea have been removed.

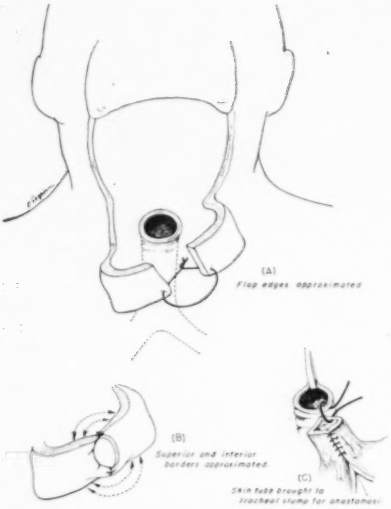

FIG. 9—Method of suturing skin flaps to form tube and its anastomosis to the remaining trachea.

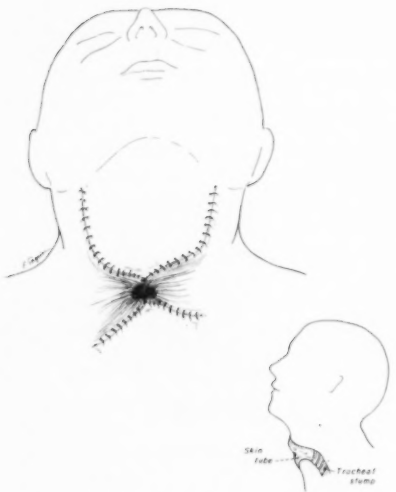

FIG. 10—Closure of wounds after formation of skin tube reaching into superior mediastinum and anastomosed to trachea. Insert shows a sagittal section of skin tube joining trachea.

This method of forming the skin tube and bringing it to the trachea may prove more satisfactory than the trans-sternal route described above for major tracheal resections. By having the skin tube in the approximate normal location of the trachea, some of the healing problems associated with dead space might be avoided and passage of the skin tube beneath the aortic arch in a vertical direction would also avoid the manipulations of trachea and skin tube necessary to bring them anteriorly around the aortic arch or ascending aorta. We have not had an opportunity to apply this technique, but on the basis of a limited experience with other tracheal resections it appears to offer some advantage over the sternal tracheostomy described above. Other advantages might be realized in a more stable repair of the sternum and easier accessibility of the carina and major bronchi.

Inasmuch as malignant tumors of the trachea are rare, the need for a radical operation such as this will not be great. However, for an occasional patient the techniques described above appear to fulfill the requirements of adequate local excision of the primary tumor and of the major lymphatic drainage of the trachea. The latter is not of primary importance with cylindromas, but it may be in dealing with epidermoid carcinomas. Reconstruction of the airway by the proposed methods is indeed complex, but it is probably safer than the insertion of rigid tubes, since the airway is directly accessible both immediately postoperatively and subsequently when the patient assumes care of the tracheostomy.

SUMMARY

A technique for extensive tracheal resection for carcinoma with establishment of sternal tracheostomy is described. This is accomplished by construction of a skin tube from the anterior chest wall

which is passed through the anterior mediastinum to be anastomosed to the remaining trachea. On the basis of experience with four cases in which these techniques were applied, a modification for limited resection of the trachea in conjunction with laryngectomy is suggested.

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DISCUSSION

JEROME B. HEAD, M.D., Chicago: I would like to congratulate Dr. Waddell for devising an ingenious and practical solution to a very difficult problem. Fortunately, as Dr. Waddell has mentioned, subtotal tracheal resection is a procedure which is needed only rarely, for carcinoma of the trachea is an uncommon problem. There is a tendency, therefore, to neglect it. Emergency operations are devised and then forgotten. However, it is essential that work is continued.

Dr. Waddell's technique is an advance over the method using plastic tubes that were put in to take the place of the trachea, and one can hope that through further research, we shall find a method whereby the trachea can be reconstructed satisfactorily so that the patient can breathe through his normal passages.

Formerly, in performing an esophagectomy we ran the esophagus out to the neck and did a gastrostomy; if the patient's recovery was good, we then attempted reconstruction of the tube from the esophagotomy to the gastrostomy.

Dr. Waddell has mentioned the rareness of primary carcinoma of the trachea. I have seen one relatively recent case. Stokes, in his *Diseases of the Chest*, wrote that carcinoma of the trachea was characterized by moss-agate sputum. When I read Stokes many years ago, I wondered where he had seen enough cases to be able to recognize this as a characteristic. In the case I saw recently, I noted particularly that the patient did not have moss-agate sputum. But that is purely incidental.

In this case the primary carcinoma was directly below the larynx. We reemed it out to give the patient a good airway and sent him home to recuperate and recover for further surgery. However, when he came back he had developed a carcinomatosis and died of it before we could operate.

Another case which is in the same category was a cylindroma of the thyroid, a condition for which the patient had previously had a number of operations. The cylindroma had grown into the thyroid cartilage and the upper two rings of the trachea. The general surgeon performed a thyroidectomy; he shaved the thyroid close to the trachea and thyroid cartilage. We could see the cylindroma where it had invaded the trachea. It had extended over one half of the circumference of the trachea and up onto the thyroid cartilage. We excised it and replaced it with a skin graft.

The skin graft in this area, as Dr. Waddell has pointed out, needs reinforcement; if it is allowed to remain flexible it will flop closed as the patient breathes and, therefore, is not practical.

A satisfactory technique has been devised for patching the trachea and bronchi by use of a skin graft. A thin piece of skin is taken from the back, scraped free of all fat and most of the upper epithelium. Stainless steel wires are then threaded through the back of the graft to take the place of the tracheal cartilages and to stiffen it. These wires are brought out so that they do not touch the edges where the sutures will be; they are threaded through, and dipped in and out. The skin graft, scraped and wired, is then fitted into position and sutured in place. Grafts of this kind, 1, 2, or 2.5 centimeters in diameter, are satisfactory.

The removal of the cylindroma did not complete the patient's treatment, however, as there was a recurrence higher up and we planned eventually to do a complete laryngectomy—the type of operation shown by Dr. Waddell in his slides.

Through our experience with drainage of empyemas in the tubular cavities we have become very familiar with skin-flap procedure. Thoracic surgeons run into many situations where the poor condition of the patient prevents approach to the problem in any other way. Necessarily then, a means of permanent drainage is all we can provide. There are occasionally cases of tuberculous cavities in which resection and collapse are impractical due to the patient's low vital capacity; again the most suitable solution is a drainage tube. In such cases, we use a skin flap of the kind described, raise it and sew it back in place. Two weeks later we lift the flap up again, make our opening into the cavity and stitch the flap down into the cavity. We do not need to make a tube; the epithelium on one side of the wound keeps the drain open so that a tube does not have to be worn. Eventually the whole circumference of the opening epithelizes.

I would like to ask Dr. Waddell if he has thought of the feasibility of weaving wire into the skin so that the tubes will stay open. Putting a foreign body in that position, of course, increases chances of infection. However, it seems possible to me that in doing so he might eliminate the necessity of wearing a tube.

There are other conditions, more purely in the field of thoracic surgery, which necessitate reconstruction of the trachea and bronchi. For example, when the stenosis is caused by a benign tumor, the area can be excised and a graft can be used to reconstruct the bronchus. We have had one case of a benign tumor that occurred at the lower end of the trachea and involved the upper part of the right main bronchus and the upper lobe orifice. In this case, we dissected the intermediate bronchus below the upper lobe orifice, removed the upper lobe, and then took out what trachea was necessary. We made a partial closure and advanced a bronchus from the intermediate area to the trachea. We sutured it into place with satisfactory results.

In operations on the trachea, especially when there has been operative tension on the suture line, I feel that it is important to keep the patient prone, preferably in the Trendelenburg position, after the operation, enabling the graft to bring the parts together and preventing them from pulling apart.

I would like to congratulate Dr. Waddell again on his practical solution to a difficult problem in treatment of carcinoma of the trachea. This knowledge will be of use to all of us in cases in which subtotal tracheal resection must be done and will bolster our confidence.

DR. WADDELL: I would like to thank Dr. Head for his kind remarks. We have considered the use of some material—probably stainless steel wire—to stiffen these tubes; but we have not tried it as yet.

I have been quite impressed with how well the patients tolerate these endotracheal tubes and what a small problem it is to them. It seems about the same as having an ordinary tracheotomy tube. They have not objected. Another consideration is that of the four cases in which we have had experience, two had previous laryngectomies and in two the primary tumor of the trachea was near enough to the larynx so that it had to be sacrificed. Nevertheless, I certainly think that the possibility of reconstructing the trachea and reanastomosis to the stump of the trachea below and the larynx superiorly is a challenge that we hope someday to meet.

A DELAYED SIDETONE TEST TO DETECT UNILATERAL NONORGANIC DEAFNESS: ITS CLINICAL APPLICATION

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BY INVITATION
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THE purpose of this paper is to describe the clinical application of a delayed sidetone test for detecting nonorganic unilateral deafness. This test was originally reported in the *Archives of Otolaryngology* in July 1957.[7] That report was based on research conducted on 70 organic cases and determined the performance of this type of hearing loss under delayed sidetone. The present paper deals with our subsequent experience with the test in routine clinical application, with its use in the disclosure of feigned unilateral deafness, as well as in the diagnosis of true organic unilateral deafness. It is important to note early that the use of this test does not supersede the application of traditional tests having the same goals nor does it lessen the need for a variety of testing procedures in this type of case.

Lee,[11] in 1950 in describing delayed sidetone, stated that its "effect on speech is involuntary and induced with little or no regard to previous conditioning or the subject's will to oppose the influence of the feedback." Subsequent research described the distortion effects in the speaking process caused by various time delays and presentation levels of delayed sidetone.[2,6,16] Among the effects which have been studied are alterations in fundamental voice pitch, disturbances in vocal quality, changes in vocal intensity, articulatory dysfunctions and cumulative time changes.[14,4,5,10] Delayed sidetone has also been used in studying psychological stress[13,15] and possible clinical application has been reported in the field of stuttering.[12]

The use of this technique to detect nonorganic deafness has been noted by Azzi,[1] who suggested a unilateral application and by Hanley and Tiffany,[10] who stated that "by employing a combination of rate measurements and observations of other effects of speech breakdown, reliable and usable clinical information could be obtained as an aid in the evaluation of suspected cases of malingering or psychogenic deafness." Dr. Glorig[9] in 1954 stated: "It is too early to give any positive results obtained in our studies of the delayed speech test, but I am certain that we are on the right track in our search for a malingering test."

Delayed sidetone as it is used clinically is achieved by having the subject read selected material into a microphone, recording this speech on tape by means of a recording head on a tape recorder, storing it for a critical amount of time and returning the speech to the subject through the playback head into an ampli-

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fier and through an attenuator at controlled levels. This delay, which is approximately one fifth of a second, is achieved by means of the placement of the recording and playback heads. The delay interferes with the subject's own monitoring mechanism and breaks up the normal flow of speech to produce disjointed speaking similar to stuttering. In addition, the delayed sidetone prolongs the oral reading. In agreement with previous research, we have found the timing of oral reading passages to be the most useful clinical measurement of the delayed sidetone effect at the present time.

ADMINISTRATION OF THE TEST

Each subject is screened to determine the existence of any visual or language problems or neuropsychiatric disability. The subject is then taken into the test room of a double-room sound suite, and a chest microphone is placed approximately six inches in front of him. Prior to the delayed sidetone test the subject is asked to read aloud a standard reading passage which determines his ability to read at the fifth grade level; this reading test is typed on a five-by-eight card and encased in plastic. He also reads aloud typed instructions on the reverse side explaining that he should read the passage from beginning to end without hesitating, stopping or attempting to change his normal speech. He is told not to touch the microphone, to speak as clearly and as normally as possible, and to wait until he receives the signal to begin reading. The clinician then adjusts the controls on a two-channel audiometer. The reference is the hearing level in the subject's better ear. Delayed sidetone is set on one channel at 60 decibels above the speech reception threshold (SRT) of the better ear; i.e., SRT = 0 db., delayed sidetone = 60 db.; SRT = 7 db., delayed sidetone = 67 db. A complex masking noise is set at an 80-decibel sensation level on the second channel, again with reference to the admittedly better ear.

In the current application of the test, certain modifications have been put into effect. Contrary to our original procedure, the delayed sidetone is now delivered to the allegedly poorer ear first, with the 80 db. of masking noise going to the better ear. The subject then reads 400 syllables of equated prose at the fifth grade level of reading difficulty.[3] This is continuous, unemotional prose material. The subject is given the signal to begin, with the delayed sidetone going to the so-called poorer ear, and during this condition the clinician times the 400-syllable passage with a stop-watch and, upon its completion, marks the time. The condition is then reversed so that the delayed sidetone is given to the better ear with masking to the poorer ear, and another similar 400-syllable passage is delivered to the subject and timed as before.

EXAMPLES OF THE APPLICATION OF THE TEST

Attempts to explain the dramatic effect of this delayed sidetone test are inadequate when compared with hearing the breakdown in the speaking process of the individual being tested. However, the most important criterion is the timing of the passages in each test condition.

This unilateral test is used effectively with the true organic hearing loss. One such individual presented the classic picture of unilateral deafness, with the better ear falling within the normal range with a pure tone average through the speech range of 8 db. and an SRT of 10 db. His poorer ear showed no response at the maximum limits of the audiometer. Upon application of the unilateral test to his poorer ear first, the

effect upon speaking and oral reading rate was minimal because he was unable to hear his voice in delayed sidetone. It took this subject 120.6 seconds to read the first 400-syllable passage. When the situation was reversed and the delayed sidetone was delivered to the normally hearing ear, definite changes occurred in speech production when compared with the previous passage. In addition, there was a prolongation of the oral reading. It took 290.1 seconds to read approximately one half of the 400-syllable passage. His involvement was so severe that it was not necessary to continue the test condition. However, when the delayed sidetone was discontinued, the subject quickly returned to reasonably normal oral reading.

This delayed sidetone test also is useful in detecting nonorganic unilateral deafness. One such patient tested in the Clinic originally claimed a severe hearing loss in the poorer ear, with normal hearing in the opposite ear. In the audiometric workup, the special tests for nonorganic involvement were inconclusive. The delayed sidetone test was given in this case, as it is in all such cases showing hearing which is normal through the speech range in one ear and a 30-decibel difference in hearing level between ears. Delayed sidetone was presented to the allegedly poorer ear first, and there were marked speech distortions. It took 148.8 seconds to read this passage. When the condition was reversed and delayed sidetone was presented to the better ear, striking similarity in speaking was noted between the two conditions. We do not depend, however, solely on the impressions of the clinician, but again measure the reading time, which in this case was 150.6 seconds. Thus, there was a difference of 1.8 seconds between conditions, indicating hearing acuity similar to the good ear, which was borne out later in volitional responses given by this subject.

Following the completed unilateral delayed sidetone test, which takes but a few minutes, pure tone audiometry is immediately repeated, and if previous inconsistencies are no longer apparent, which is often the case, the results are used for medicolegal rating purposes. However, if inconsistencies remain, the clinician confronts the subject with the fact that the delayed sidetone test has demonstrated, contrary to his claim, that there is strong indication that the hearing level in the allegedly deafened ear is better than shown previously.

This discussion should not be an emotional accusation. It is simply explained to the subject that there are several possibilities that can account for the existing discrepancies, such as equipment failure or error on the part of the clinician. It is explained that the equipment is calibrated routinely, that the work of the clinician has been rechecked and that only one conclusion can be drawn, namely, that the subject is exerting some voluntary influence on the testing and should give an explanation. Rarely does the claimant admit exaggeration of deafness. However, the delayed sidetone test has been of signal value in this respect because it produces bizarre and unsettling reactions within the subject, which are both physiological and psychological in nature. These reactions reduce his ability to maintain an accurate simulation of the assumed deafness in the allegedly poorer ear. When this occurs, it is possible for the clinician to "break through" the subject's resistance to the testing procedures so that a markedly better threshold can be obtained in the ear in which deafness was feigned. In the case of the bona fide organic unilateral hearing loss, no such change in threshold occurs. Follow-up audiometry is always indicated immediately after such discussion.

The unilateral test has been used successfully with another type of case in which no response is obtained for either ear at the limits of audiometric testing. One such individual gave no response initially, followed by gross fluctuation. In this intermediate stage of work-up, the subject gave pure tone responses averaging 62 db. in the speech range, with an SRT of 28 db., a positive Doerfler-Stewart test, and a Stenger test which was inconclusive. The unilateral delayed sidetone test was given and the first condition resulted in a timing of 128.0 seconds with no delayed sidetone involvement. The second condition, however, produced marked prolongation of oral reading as well as speech involvement and resulted in a timing of the passage of 192.3 seconds. Following the test, we were able to secure voluntary audiometric results showing hearing within the normal range for one ear and a 68 db. loss in the poorer ear. Despite the initial lack of cooperation, we were able to demonstrate through the use of the unilateral test that the subject had neither a bilaterally severe hearing deficit nor bilaterally normal hearing, but that a unilateral condition existed.

INTERPRETATION OF THE TEST RESULTS

Interpretation is a simple matter and rests on the critical comparison of reading times for the passages. The reading times for the passages are recorded as well as the particulars of the test, such as the ear to be tested first, the delayed sidetone playback level, the masking level in decibels above the normal speech reception threshold, and the playback time delay.

In the case of true organic deafness, there is generally a large difference in reading times for the passages, as well as clear-cut differences in the oral reading. In the case of nonorganic deafness, the times as measured for the two test passages fall within 10 seconds of each other, and the reading process is involved to approximately the same degree for each passage. In addition, we occasionally find results in which the reading time for the second condition, when delayed sidetone is presented to the better ear, is shorter than that when delayed sidetone is presented to the allegedly poorer ear, indicating that the better ear may be worse than the claimed poorer ear. As a final word of caution, this testing procedure should not be employed at present to quantify the extent of the auditory deficit in the so-called poorer ear because there appears to be no linear relationship between time measurements and the difference in organic thresholds among subjects.

NEED FOR THE TEST

"The program of service-connected disability compensation administered by the Veterans Administration is by far the largest disability benefits system in the United States."[17] One aspect of this program is the evaluation of hearing disability which is conducted in Veterans Administration and contract audiology clinics. In the Los Angeles Regional Office Audiology Clinic, approximately 1500 audiometric compensation examinations are conducted yearly. A significant degree of exaggeration of actual hearing loss and feigning of deafness where normal hearing exists is in evidence in these examinations. One type of pseudo deafness encountered in the Audiology Clinic is the false unilateral hearing loss. This type of loss is assumed because of the inherent advantages to the claimant, who thereby retains one normally hearing ear which does not seriously hamper his communication, and who does not find it necessary to feign the usual symptoms of deafness, such as straining to hear, cup-

TABLE I

SUMMARY OF TEST DATA FOR PRESENT ORGANIC AND NONORGANIC GROUPS, AND FOR ORGANIC GROUP PREVIOUSLY STUDIED

TEST DATA	PRESENT ORGANIC GROUP N=69	PREVIOUSLY STUDIED ORGANIC GROUP N=70	PRESENT NONORGANIC GROUP N=25
Mean Initial SRT	73.1 db.	. . .	59.3 db.
Mean Final SRT	69.3 db.	69.7 db.	15.9 db.
Mean SRT Difference	—3.8 db.	. . .	—43.4 db.
Mean Time Difference	37.1 sec.	36.4 sec.	5.8 sec.

ping the hand behind the ear, and exaggeratedly trying to read lips. In addition, the unsophisticated claimant, unaware of the medicolegal rating process, believes erroneously that unilateral deafness is rateable at a 50 per cent level of disability. The true organic unilateral loss is rated primarily on the basis of the acuity of the better ear, which, being normal, results in a minimal monetary award.

Because of such problems and the difficulties which exist in securing the full cooperation of claimants seeking disability ratings and because of the inequities that occur in determining compensation awards, we in the Veterans Administration are constantly seeking to improve existing techniques of testing and to devise newer and more objective methods of securing hearing threshold values.

RESEARCH PROGRAM

We have conducted a program of research in the Los Angeles Veterans Administration Audiology Clinic with the aim of developing specific audiometric techniques using delayed sidetone. This research has produced results demonstrating that the application of unilateral delayed sidetone with contralateral masking is equivalent to bilateral presentation of delayed sidetone[18]; that the application of unilateral or bilateral masking noise, although it produces the expected Lombard effect, does not change normal reading rate[19]; that oral reading rate has a high degree of stability during the reading performance of a single subject, although it differs significantly from subject to subject[8]; and that adaptation to delayed sidetone may occur during one condition of presentation after the reading of 400 syllables.[20]

Since the beginning of the clinic research program, approximately 500 veterans have been tested who initially showed various degrees of unilateral deafness. Out of this group, 94 cases demonstrating audiometric problems, such as variable thresholds in the allegedly poorer ear or positive or inconclusive Stenger and Lombard test results, were selected for study. The unilateral delayed sidetone test was given, and on the basis of the final test results the group was separated into two categories: those cases showing variation of 10 db. or less in threshold values between ears throughout all tests; and those cases which showed a significant reduction in threshold difference between ears as a

result of the audiometric workup. (See table I.)

In addition, the test results obtained from the organic group in the original experiment were used for comparison purposes. The two organic groups show close similarity in results. Seventy organically deafened subjects were used in the original study, and 69 in the present one. Their mean final speech reception thresholds were 69.7 decibels and 69.3 decibels respectively, while their mean delayed sidetone test time differences were 36.4 seconds and 37.1 seconds respectively. The present nonorganic group contained 25 subjects. This group showed a 43.4 decibel difference between initial and final mean speech reception thresholds, with a mean final difference between ears of 15.9 decibels. The mean time difference for this group on the delayed sidetone test was 5.8 seconds. (See table I.) Thus, it appeared that the delayed sidetone test produces the results previously claimed for it.

DISCUSSION

Because of the difficulty in assessing the intent and cooperation of the subject in medicolegal hearing evaluations, the possibility of exaggeration of disability, either volitional or nonvolitional, must be considered during examination. If such exaggeration exists, the flick of a finger or a signal button is a limited response which puts little demand on the subject. More objective methods of obtaining responses indicating hearing acuity are needed. Delayed sidetone, we feel, is one such method. Therefore, we have sought methods whereby delayed sidetone may be used as the basis of new audiometric procedures. To this end a program of research has been carried out for the past three years which has resulted in a clinical test for the detection of unilateral deafness.

The present report is a discussion of the clinical use of this test, a description of modifications which were introduced, and an analysis of the results of its application to a group of veterans presenting audiometric problems. There is evidence to suggest that the original techniques for evaluating the test results are sound; that this test effectively detects the presence of one-sided nonorganic deafness and aids in determining the existence of bona fide organic deafness.

A secondary advantage of the test is that the tape recording of the subject's speaking performance can be retained for future reaffirmation of the test results. The tape recording can also serve as an easily demonstrable and clearly understandable piece of evidence in workmen's compensation or civil court proceedings. For these reasons we believe that our delayed sidetone test is of substantial value in the oto-audiological examination process required in the medicolegal management of hearing disability.

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DISCUSSION

RAYMOND CARHART, Ph.D., Evanston, Illinois: It is a real pleasure to have a chance to discuss such a fine paper. The paper is welcome for two reasons.

First, it illustrates the growth in the techniques of auditory testing which has taken place during the past decade. An array of audiologic procedures has been developed which can assist the otolaryngologist in arriving at differential diagnosis. Not only are there procedures like the delayed sidetone and psychogalvanic audiometry which help identify the person who has peripheral adequacy in the hearing mechanism, but there are also tests such as automatic audiometry which help differentiate cochlear from retrocochlear lesions.

The most recent development is the utilization of auditory tests in the differentiation of certain neurologic lesions. For example, Boccas' techniques for electronically distorting speech help to evaluate lesions of the temporal lobe. The years ahead should bring both further innovations in testing procedure and increased insight into the uses to which the added audiologic information may be put by the diagnostician.

The second reason for welcoming Dr. Gibbons' report is that it illustrates that the delayed sidetone test is easy to administer and is effective when the patient has a non-organic loss. Thus, it encourages the clinician to consider adding delayed sidetone to his armamentarium of office procedures.

The delayed sidetone test can be set up in private practice without great difficulty or expense. A simple tape recorder, provided it allows speech to be reproduced with about a fifth of a second lag, can be made an accessory to a good clinical audiometer.

When he incorporates this technique, however, the clinician must keep three cautions in mind. For one thing, the consistency with

which the test disrupts the speech pattern with nonorganic loss is still not fully established. Dr. Gibbons just reported to us, for example, that only 25 out of 94 individuals with inconclusive or positive results on Stenger and Lombard tests were induced to give sharply improved responses after delayed sidetone. These cases can be accepted as having initially shown nonorganic components of loss. One wonders how many of the remaining 69 persons, who also showed questionable behavior on the Stenger and Lombard tests, had substantial nonorganic involvements. One of our needs at the present time is for a definitive confirmation of the efficacy of the delayed sidetone technique.

In the second place, we must all recognize that some types of organic loss are highly susceptible to disruption by delayed sidetone when the speech is almost at the patient's threshold. The patient with recruitment would be expected to hear his speech loudly when it is close to his threshold, and hence to be disturbed by it. Surprisingly, as Harford showed in a study recently completed in our laboratory, patients with otosclerosis are equally affected. The clinician must consequently be cautious in evaluating results of the delayed sidetone test, accepting these results as indicating nonorganic loss only when other findings are confirmatory.

Third, the clinician must remember that the incidence of nonorganic hearing loss is quite different among veterans than it is among nonveterans. The delayed sidetone technique is especially reliable where this incidence is high, although its utilization elsewhere is no less effective in individual cases.

In further comment, it is important not only to reiterate appreciation for the excellent paper by Dr. Gibbons, it is important also to express the hope that he and his colleagues will continue to report their research experience with the delayed sidetone test. They are in the fortunate position of having at their disposal a population wherein nonorganic hearing loss is sufficiently common that extensive assessment of the clinical value of the delayed sidetone test is practical.

In closing, there is one point on which I was not completely clear. It would be most interesting to hear Dr. Gibbons' comments on the conditions in which the monaural delayed sidetone test should be used as opposed to those conditions in which the binaural test is indicated. I am not sure whether there are times when he feels the monaural technique is a substitute for the binaural test or not.

SCOTT N. REGER, Ph.D., Iowa City, Iowa: The detection of malingering is an intriguing and challenging subject, since in many such tests the acumen of the examiner is pitted against the wit of the suspect. Unfortunately, not all malingerers are half-wits—sometimes to the embarrassment of the examiner. The excellent test just described places the burden of proof on the subject. The cunning of the malingerer is matched against the cold impersonal and inexorable logic of the machine instead of the astuteness of the otolaryngologist.

The value of the described test cannot be questioned. It is merely unfortunate that the required equipment, for obvious reasons, is rarely found in the armamentarium of Dr. John Otolaryngologist.

Your discussant wishes to supplement the excellent presentation by Dr. Gibbons and Dr. Boyd with a description of a modernized version of the Stenger test for the detection of unilateral nonorganic deafness which is both quantitative and foolproof. This procedure has been described to my captive audiences in Academy courses on audiometry for the past several years.

The instrumentation consists essentially of a dual channel audiometer, which enables separate control of the hearing of a given frequency in either ear. The following procedure will be found effective:

While the tone is interrupted, set the gain control of the receiver over the alleged defective ear at a hearing level of 50 decibels and 20 decibels above the threshold of the nonaffected ear. Then turn on the tone.

If the hearing sensitivity be approximately normal or equal in each ear, the suspect will not respond, since he will hear the tone only in the alleged defective ear—which he dare not admit. The suspect will not become aware of a tone in the nonaffected ear until the loudness levels in the two ears differs not more than 5 decibels.

Next assume a suspect with an actual 30-decibel loss in the affected ear. The 50-decibel hearing level presented to this ear will be 20 decibels above the suspect's threshold. The tone in the nonaffected ear will now be perceived at the 15-decibel or 20-decibel hearing level in this ear, indicating an approxi-

mate 30-decibel loss in the allegedly affected ear.

One precaution must be observed carefully during the test procedure. The tone must be interrupted whenever the intensity level is varied in either ear. This test can be administered to a patient with unilateral organic deafness without the patient's knowledge.

DR. GIBBONS: In answer to Dr. Carhart's question, I would like to clarify that this particular unilateral delayed sidetone test, as we now apply it, is only given in cases in which the hearing in one ear is normal. We hope eventually to be able to refine the process so that we will be able to do the same kind of testing in those cases in which the better ear is still defective. But as it stands right now, it applies only to one normal ear.

I think it should be pointed out that a combination of techniques is coming into play right now. In the Journal of Speech and Hearing Research—the current issue—there is an excellent piece of research described, wherein delayed sidetone was combined with the galvanic skin response; and we hope that through some such combination of procedures we may be able to refine it even further.

INTRODUCTION

FRANCIS L. LEDERER, M.D.

CHICAGO, ILLINOIS

WE bring before you the practical considerations of good pedagogy in an effort to provide leadership and to introduce modern developments in education. These considerations are not new but represent the progressive thinking for which the American Academy of Ophthalmology and Otolaryngology has long been recognized. It is entirely possible that on this Columbus Day we may see the need to explore beyond the frontiers of the communication of knowledge known as teaching, and to determine whether we are or are not efficient or effective teachers.

In this challenging post-Sputnik era, we have come under close scrutiny as part of the new national trend termed "an agonizing reappraisal of education." Reappraisal in medical teaching is overdue. Advances in the field will depend solely on how rigidly we are entrenched in outworn traditions. Today, we are shocked when we realize that in the art of medicine, knowledge has advanced considerably in the last forty years and students have multiplied beyond the scope of existing teaching facilities and resources. We are all in agreement, I'm sure, that something must be accomplished to bring the equation into better balance. That something, of necessity, must produce an environment in which more knowledge can be more quickly disseminated with results of higher quality.

How are we to do all this? First comes the absolute need for a better understanding of the problem. We who are subject matter experts (we might as well admit it) do not thereby automatically become topnotch pedagogs, for few of us have the experience gained by formal training. Our task, therefore, is to learn to become "communications engineers" as well as subject matter personnel. This is very fitting and rational for us in the fields of ophthalmology and otolaryngology, for we are, after all, the very guardians of the major avenues of sensory communication.

To fill the need for a better understanding, we are presenting today a highly condensed preview version of what is available to us in very substantial measure if we are earnest enough to seek it out. This encapsulated representation is designed not so much to palliate the hunger we hope you all experience, but rather to highlight the path you may desire to pursue in the future.

Knowledge is a seed which must be planted; therefore, like the farmer, we must know the soil and what it contributes to the process of germination. The human mind is as variegated in its responses as are the broad acres of the world. Like them, however, we have evidence of some universal characteristics; these permit us to set down a few basic criteria for the germinating process called learning.

Presented at the *Special Program* of Teachers' Sections: Ophthalmology and Otolaryngology at the Sixty-Third Annual Session of the American Academy of Ophthalmology and Otolaryngology, Oct. 12-17, 1958, Chicago.

To bring us up to date on the numerous factors involved in the learning process, it is now my privilege to introduce as our first speaker, a man who has spent a lifetime in the field of human development. He has served on the General Education Board of the Rockefeller Foundation, and was a Vice President of the Josiah Macy Foundation, as well as a Director of the Caroline Zachary Institute of Human Development. He is now a consultant and lecturer in the field of his life's work — Mr. Lawrence K. Frank.

To give us an insight into the factors in effective pedagogy, we have sought out a man who has made a career of teaching teachers how to teach. Formerly of Northwestern University's School of Education, he is now Professor of Education and Coordinator of Behavioral Science Courses at the University of Oregon. Our second speaker will be Dr. Raymond N. Lowe.

We cannot leave you without sensitizing your awareness to the important matter of the tools available to perform your task in the least possible time. From the dawn of history, our farmer has fashioned tools to prepare the soil, plant, cultivate, and even to invigorate or fertilize. The need is no less in the classroom. In fact, it is more essential. For improved understanding of such effective tools and their function as instruments of communication, I would like to introduce as our third speaker, an expert in the field. Dr. Richard B. Lewis headed production planning for the Navy's 25 million dollar program of training films in World War II, and he is presently Professor of Education and Head of the Division of Audio-Visual Services at San Jose State College, California.

WHAT IS INVOLVED IN THE LEARNING PROCESS?

LAWRENCE K. FRANK, LL.D.
BELMONT, MASSACHUSETTS
BY INVITATION

SINCE we are concerned with teaching and learning in medical education, we should start by recognizing the diverse and often conflicting objectives in medical education, each of which involves different kinds of learning.

For example, the first two years in medical school present problems of learning that differ from the final clinical years, from the internship, and from the residency and postgraduate programs. But as Eugene Du Bois, then Dean at Cornell Medical School, said some years ago, "The problem of medical education is to teach the medicine of today so that the student can learn the medicine of twenty years from now." This may be amended today to read, "so that he can learn the medicine of ten years or less from now."

The question, as I see it, is how can we help the student to *learn to learn;* that is, not just to learn what we try to teach today, to master a specific body of material and techniques, but to learn in such a fashion that he can continue learning and, may I emphasize, so that he can *unlearn* after he leaves medical school. He will have to unlearn—to revise and reject and replace what he has previously been taught—in order to keep up with the advances in science and medicine. These advances are and have been so rapid that he may find that what he has learned may be outdated very soon after his graduation.

All professional education is an effort to teach and to train students to think in the specialized ways which are essential to each profession; to train them to perceive what is specifically significant and important in that profession; to train them to learn how to make judgments according to the criteria of credibility which that profession has established as essential for its practice; and to learn the basic concepts and assumptions which that profession relies upon to guide its practice and further learning.

Professional advance takes place, not only through the development of improved techniques, instruments and skills, but also through the continuous revision of the cognitive aspects of the profession; the continual revision and replacement of the concepts and assumptions of the profession. Thus each generation of professional students should be freed from the previous generation in order to carry forward its professional tasks, learning, of course, from its predecessors how to do that. This makes professional education a difficult and complicated process and imposes a peculiarly complicated responsibility on teachers in a professional school.

Let us look briefly at a few of the aims and objectives of medical education in which learning problems are crucial.[6]

Presented at the *Special Program* of Teachers' Sections: Ophthalmology and Otolaryngology at the Sixty-Third Annual Session of the American Academy of Ophthalmology and Otolaryngology, Oct. 12-17, 1958, Chicago.

1. To teach an immense body of factual information which is rapidly becoming overwhelming, but which the student is expected to memorize and to be able to verbalize in examinations and tests—often true-false, or so-called objective, examinations. This is largely the burden of preclinical years. The student is also expected to learn the theories and the generalizations derived from scientific investigations which underly this factual material.

2. To foster understanding of theoretical formulations and basic concepts, many of which are radically in conflict with what the student understood and believed before entering medical school. Unless we can free the medical student from the folklore, the preconceived ideas and the assumptions of the lay world, he will not be able to think as a physician or to learn what is essential to medical practice.

3. To develop skills and techniques—in laboratory work, dissection, examination of patients, and so on, not forgetting the skills and techniques of history taking.

4. To create a new awareness of what the student would otherwise ignore or overlook, with a capacity to evaluate and synthesize a large number of signs, indicators and symptoms, as well as the life history of a patient, into a clinical judgment, and to choose remedies and treatment appropriate for the patient.

5. To recondition the student so that he can cope with situations that for most others are too disturbing to be approached with judgment.

Now these objectives are only a few of the many, but I am offering them to you at this time because I want to discuss with you briefly what kind of learning, or kinds of learning, they involve, and to ask of you what we know about learning that may be relevant to these different objectives.

First, let me emphasize that there is a great difference between teaching and learning. Teaching, we may say, is what a teacher does to and for a student; but learning is what each student must do by and for himself, and which may or may not be a response to that teaching.

A student learns from every classroom experience; but does he necessarily learn what the teacher expects him to learn? That is the important question. As I will discuss later, what he learns may be governed by his own individual orientation.

Students of learning have been engaged in experimental work with regard to learning, largely with animals. They have been trying to teach their subjects to solve problems, to run mazes, to make discriminations, relying upon reward and punishment to induce or to coerce the subject to learn what the experimenter wants him to learn.

Current learning theories emphasize motivation; by that we mean the kind and the amount of lures, incentives, or rewards which are necessary to make the subject want to do what the experimenter wants him to do. Then, too, there are various punishments, shocks, deprivations, which are used to compel the subject to eliminate errors or to stimulate the subject to solve the problem by escaping from shocks.

The emphasis today is on reinforcement theories which stress the recency of the experiments, the frequency of the trials, the rewards and the punishments which the animal experiences in learning to solve the problem set by the experimenter. This "trial and error" learning has very little to do with professional education, except perhaps when the student fumbles around the laboratory or

in dissections, and has to learn by trial and error how to manipulate materials.

Then there is rote learning, the memorization of names, terminology, descriptions, and so on, often discrete, unrelated items which the student must memorize in order to pass examinations. Such rote learning is usually temporary and is largely forgotten by the third and fourth year of training, if not earlier.

Conditioned reflex learning often takes place when an event or sign is presented concomitantly with a biological stimulus and therefore becomes a surrogate for that biological stimulus. Some of this takes place in students as they learn to recognize indicators of events and signs that demand response.

Recently, self-rewarding learning is beginning to be recognized as probably crucial in the human, although occurring in animals to some extent. Self-rewarding learning occurs when an individual learns, not by external rewards or by punishments or the threat of failure, but when his individual personal capacities and interests find satisfaction in meeting a problem, coping with a difficulty, mastering a situation, and becomes directive in what he learns and does.

Here the motivation—if you care to use the word—is intrinsic, not pressures or threats from outside; and the student's efforts at learning are an expression primarily of his level of aspiration. Are we discouraging self-rewarding learning by reliance upon the other kinds of learning, using methods and external motivations that make self-rewarding learning difficult, if not impossible?

May I point out that in a number of professional schools the student enters with a high level of aspiration, but somehow or other, before the second year is out, it is significantly lowered or entirely destroyed for some students who could do top level work but no longer have the aspiration to achieve.[1]

Self-rewarding learning may be allied to what the psychoanalysts call ego functions, which, according to orthodox analysis, serve to defend the individual from his own instincts—his "id" impulses—and from the outside world. Recently ego functions have been redefined by some of the less orthodox analysts to recognize the capacity for learning, to solve problems, and to be creative. The analysts also emphasize something very important, namely, that all learning is colored by feelings and emotions to a greater or less extent. They point out how often a single experience, with no repetitions, may fixate a learned experience for life and how often learning may be blocked by feelings of resentment or boredom or fostered by feelings of elation and euphoria.

Now, for symbolic learning, which is the crux of human learning and especially of professional education, we presently have little knowledge or understanding. There has been very little work done on symbolic learning and concept formation. Nevertheless, symbolic learning is primarily what we are talking about, as I see it, because that involves learning of concepts. Concepts are *not* generalizations which we derive inductively from observations. Concepts precede observations; they lead us to formulate problems, to select methods and techniques, to focus observations, and to interpret our findings and formulate our generalizations. Concepts are assumptions or postulates by which we perceive events and look for significance and meaning. They are literally *pre*conceptions and often operate in our thinking and learning without our awareness. Every generation has its preferred pre-

conceptions, ideas which it takes for granted, which a later generation may have to reject as invalid and replace if we are to advance.

I would like to point out that concepts are not something mysterious. They function as templates or patterns for stabilizing the world, for handling experience, for ordering the great diversity of experience, for giving some order to the flux of experience, so that we can recognize and assimilate it, and deal with it purposively.

Concepts function as assumptions or as preconceptions for guidance in approaching situations. The Gestalt psychologists have emphasized for years that we initially perceive situations as wholes and only later analyze them and find out how they are made up. That is very important for education and teaching, because to a very large extent we give individuals the detail facts, the analytic findings, and expect them to organize such material into a whole, instead of starting with the pattern, the configuration as a whole and then proceeding psychologically with an analysis of the details, after we have gained a conceptual grasp of the subject. It is as if we told the student to look through the microscope with the highest power magnifications without having previously examined the specimen as a whole, first recognizing its shape, size, configuration and its relation to and origin in the organism from which that specimen was taken. This focus on fine details is feasible and desirable for an experienced investigator but utterly confusing and baffling for a beginner who cannot start with analytic findings and details. Students need a larger perception, an organizing concept, to understand analytic findings and to give them significance and relevance in their thinking.

Generalizations, let me repeat, are derived inductively from observation of what we call facts. But before we can make a generalization, we must have some concepts to guide our observations and to give meaning to the facts or findings of our analytic studies. Failure to recognize the difference between a generalization, which is derived inductively from observation, and a concept, which comes before you make observations, seems to be one of the most prevalent errors in our thinking and our teaching. To quote Einstein,[5] "We now realize with special clarity how much in error are those theorists who believe that theory comes inductively from experience."

One of the greatest weaknesses in all of our teaching is our inability or failure to communicate concepts which students must have in order to handle the multiplicity of facts and observations and techniques which they are expected to master. And, as I said, the major difficulty is that medical and technical education does not adequately help students to develop the capacity for learning to learn, that is, to develop the concepts with which they can assimilate new information, new knowledge, and new understanding. In our professional schools we tend to present information, facts, and discrete findings and to teach manipulation of these facts and materials, assuming that by some process of intellectual osmosis, conceptual understanding will be transferred to students or spontaneously developed by them.

That is why we should emphasize the importance of "unlearning." As long as a student retains a body of prescientific or anachronistic concepts, he will attempt to fit what he is taught into that conceptual framework, thereby distorting it, because that is the only way he can interpret and attempt to understand. This is in a manner, self-defeating learning. Unless we can make him self-consciously aware of his preconceptions, he does not know how to reject them, be-

cause he takes them for granted and continues to interpret everything in terms of those unexamined or unexplored assumptions.

All these different forms of learning I have mentioned, and probably many other kinds, are involved in medical education. Consider what the students have to face in the first two years, during which each discipline of the medical sciences is trying to teach what it knows of a subject, this overwhelming mass of knowledge, becoming greater and greater each year. We give students not only this factual material, but ask them to understand the basic theories of that discipline (not its relation to clinical work), and then to be able to recite those things back in an examination. This may be necessary for a graduate student specializing in a discipline, but is it appropriate for education of physicians?

Thus a student may enter the clinical years with no adequate conceptual grasp of the preclinical subjects; indeed, he has usually forgotten much of what he has painfully learned to verbalize on examinations, since such knowledge was not assimilated or organized in a transactional relation, nor did it become operational in his thinking.

Part of the difficulty is that we expect the students to verbalize everything they learn. At the University of Illinois, in experimental work in the teaching of mathematics, they have found that if students when learning to think in terms of mathematical ideas and concepts are *not* asked to verbalize, they understand and can apply what they have learned better than those who verbalize it. We may speak, then of nonverbal learning as probably essential to mastery of many fields of knowledge as it is in skills and techniques.

The point is that we have ways of learning and thinking which cannot be verbalized without confusing our mental processes. One of the questions that we should, therefore, ask ourselves in regard to examinations is, "Is it wise and desirable to ask students to verbalize everything we try to teach?" Much of the most important learning we cannot verbalize, probably because our language is not adequate. Also there are many students who do not have the capacity for easy verbalization but who may be excellent in using medical knowledge and techniques—these may be the good physicians.

In the last two years of medicine, we find a different situation. The student is expected to be able to synthesize and apply what he has previously learned, to evaluate signs and symptoms, to make judgments of individual patients and to demonstrate various clinical skills and approaches to patients—the crux of professional practices toward which all his learning should contribute.

How far does teaching in the first two years, and the kind of learning that is expected of the student in those first courses, hinder the kind of thinking and learning that is required in the last two years? Can we discover any way to teach the first two years in such a fashion that the student can more readily learn in the clinical years; especially, in the first two years can we initiate the student into learning to think as a clinician? I take it that one of the basic problems of medical education calls for consideration of learning processes in students.

Let me remind you that teaching depends upon the student's perception of what he hears. Perception is not a simple process of hearing, tasting, touching, smelling—the passive reception of stimuli to sensations. Recent investigations

indicate that all sensations may be distorted and greatly contaminated between their initial sensory reception and the central process in which they become perceptions. Moreover, studies show that each person has a highly selective awareness and idiomatically patterned perception, so that each one perceives what he first conceives—or preconceives —and, therefore, brings it into the framework of his own habitual way of thinking. This is revealed by various projective methods, such as the Rorschach Test and the Thematic Apperception Test (T.A.T.).

This selective perception has been clearly demonstrated by the advance of science. We have had to develop new perceptions in order to see things that a previous generation did not see. Our perceptions are warped by our preconception and our expectation, and colored by feelings and emotions, so that in learning we may often distort or warp whatever we are taught. The student's capacity to empathize with patients may govern his ability to communicate effectively with them—to evoke communication.[4]

Much of medical education is an effort to create awareness and to refocus perceptions so that the student will be able to perceive what the untrained person overlooks or neglects, so that he will be able to bring that observation into a medically oriented conceptural framework. We should remember that a student comes to medical school with twenty years of life experience—fourteen to sixteen years of preliminary education, much of it contrary to what you are trying to teach him in the medical school, in the sense that it is largely obsolete, irrelevant, and made up of facts that are no longer adequate or valid today.

Can we assume, as we often do in education, that the student is a *tabula rasa*, a clean slate, as John Locke assumed, upon which the teacher can write whatever he thinks is appropriate and that this will be retained and understood? Or do we assume that there is plenty of room on the slate for new information, believing that we can add facts and information but forgetting that we do *not* learn by adding materials. Whatever we learn takes place under the guidance of our preconceptions, so that new materials have to be incorporated with what we already know and believe or else kept isolated and inoperable as "inert ideas," as Whitehead called them. Learning is a process of continued reorganization which may perpetuate the initial orientation or lead to new orientation.

To a large extent then, we should realize that in professional education we are concerned with "unlearning," in wiping off the slate, at least in eliminating a lot of the student's preconceptions and in helping him to grasp new concepts so that he can learn anew.

Moreover, each student has his own individualized personal way of perceiving and of learning. Some are visualizers who learn from photographs, diagrams, physical models; they are like artists and architects who learn not from words but from visual experience and often have difficulty in verbalizing. Then there are others who learn principally by reading and hearing; others learn by direct contacts and manipulation, using their fingers and muscles; others from figures and tables supplemented by diagrams and graphs. Some students learn chiefly by identifying with the teacher, taking over his way of thinking, his assumptions, and even his mannerisms. Others do not recognize the authority of the teacher; they incorporate knowledge gained from many sources and ignore the teacher as a unique source of information. We find those differences in the Rorschach test and in the Thematic Ap-

perception Test; each person sees different configurations; some see entities, others see details; each one will "see" a different character in the picture and will write a different kind of story, a story which will come out of his "apperceptive mass," as we used to call it, his life experience, his persistent emotional conflicts and affective reactions.

I am stressing this idiomatic, idiosyncratic aspect of perception and of learning because so often we expect all students to learn in the same way and to be able to verbalize what we teach them equally well, or to be penalized. Let me make this point as concretely as possible: Here I am standing before you; you can all see me and hear my voice. Yet I have no hesitation in saying that each one of you sees a different speaker and hears a different set of remarks. It is not what I am saying, but rather what you are hearing that becomes a part of your knowledge.

Furthermore, while I speak I am sending other messages, in my tone of voice, in the inflection I use, in my facial expressions, my gestures and my postures, to all of which you are responding, often without awareness. Those nonverbal messages are invoking what we call unconscious responses of feeling, of acceptance and of approval, or of rejection and dislike. These responses occur because I am evoking for you past experiences which you may have long forgotten.

I venture to say that in medical education this same kind of idiomatic response to what you are teaching is taking place; and it may very well be that some of you are now saying to yourself, "Why am I wasting this morning listening to this nonsense, or why is he so clumsy in speaking?" Well, some of your students may say the same thing during your lectures. What students say to themselves, in their inner speech, may exercise a controlling influence upon their learning.

It is important—if we are to be good teachers—to be aware that we are not being seen by the same eyes, nor are we being heard by the same ears, when we have a group of people before us, but by many different perceivers. We assume that anyone who can write or talk can teach or communicate, an assumption that is hard to maintain when we begin to recognize the blocks and distortions involved in human communication.

The sender of the message has to code his message. Even before that he has to have a message to send, and he must be fairly clear about it or his communication may be confusing. Then he must code it, that is, he must verbalize the message so that the recipient can receive it, decode it, interpret it, and understand what the message means. A teacher may be rigorously logical, orderly, systematic, and have a complete mastery of the subject; but he may be utterly unable to communicate, since communication, like learning, is not always logical and systematic. It is a psychological two-way process, involving feedbacks.

A textbook, for example, is the result of long, hard work, of critical judgment, selection, and frequent revision, incorporating a large body of findings, presented systematically and logically by an experienced person in that field. But an oral presentation of this systematic, logical textbook thinking is not always conducive to learning, particularly if students do not have a conceptual framework relevant to that material and are not oriented to such material.

I would like to point out that we may not be communicating when we lecture. We may be just talking to ourselves out loud, or, like a public address system, reciting material with no concern for the

individual student. That, I believe, is one of the reasons why we fail to communicate to our students. When we consider our lectures as communications to the students, then we are genuinely concerned with their immediate reception and response, the way in which each student is decoding, interpreting, accepting and assimilating what we are trying to communicate.

A lecture may be a "To Whom It May Concern" message, like a broadcast, or it may be a personal message directed to each student as if he were the sole recipient of the message, so that he feels it is addressed to him and has meaning for him.

We cannot too strongly emphasize that teaching is communicating, which is a circular reciprocal process in which we establish a relation with the recipient of our messages and direct our speaking to the person, rather than focusing it upon the content. As in radio the message will be received only if the recipient is tuned in to the wave length of the sender-teacher.

Part of our difficulty in teaching arises from the assumption that knowledge is something that can be imparted and acquired, although nobody knows what this mysterious stuff is which we call "knowledge." As Dewey and Bentley[3] pointed out some years ago, we have a highly metaphysical concept of "knowledge" which we could wisely give up, replacing it with a concept of the process of "knowing," whereby the "knower" transactionally relates himself to the world by putting meaning into situations, events and people and then responding to the meaning he has imputed to the world. That is a feedback, a circular reciprocal process involving a knowing person in a cognitive relation to the world. It is not a relation of stimulus and response, nor of cause and effect. Rather, it is a process by which the individual relates himself dynamically to the world and thereby relates the world to him through what we term "knowing," just as he may relate to the world by motor action or by emotional reactions.

If we think in terms of this transactional approach, this knowing relation, we may find a new understanding of the teacher-pupil relationship. We realize that our task as teachers is to help students to relate themselves in new ways towards the subject matter in which they are being instructed. Such a transactional relation involves more than verbalizing or learning "inert ideas," as Whitehead called them. It means helping the student to gain a new conception, and making it operative in his own thinking.

Perhaps some of the difficulties in preclinical medical education arise from the inability of students to relate themselves to this immense array of factual knowledge. They have no adequate concepts to aid in the organization of these findings, no frame of reference to give them the kind of relevance and significance through which they can become meaningful in a context and serve to relate the student to the events or processes he is studying. Perhaps early contact with patients would help students in their need for context and meaning.

Let me offer another approach to this problem of teaching and learning. Suppose we think of a student as a calculating machine. Now each type of calculating machine or computing machine has a certain capacity for memory or the storage of factual data, and a certain capacity for solving problems. Some machines are digital machines; one can feed into them an enormous amount of codified numbers, but then one must give the instructions—programming, it

is called—as to what they are to do with these figures. They can then grind out instantaneously the additions, subtractions, divisions, multiplications, and other operations that are necessary for the solution of that problem. This is called a digital machine that operates bit by bit, or discretely as go—no go—yes or no (binary codes). Now much of our teaching is digital, feeding students "bits" which they cannot handle without adequate programming—that is conceptual organization that gives the bits meaning and significance for the student's understanding.

There is another type of machine which is called analogical. The analogical machine does not operate by feeding discrete information to be handled by various manipulations to produce answers. The analogical machine uses the materials to give a summation or integration that resembles a pattern, a configuration, a model, a whole.

An analogical process is, therefore, different from a digital process. Words and figures are digital; you must add up the figures or wait until the end of a sentence before you know what I am trying to say; but a picture, a pattern, a diagram, or a vivid metaphor or figure of speech, or a physical model communicates the meaning as an integrated whole. For communicating concepts which are patterns or templates, we should use analogical processes.

It is apparent that analogical thinking came before—much earlier than—digital thinking in human development. Man learned from art, poetry, religion, to perceive the world long before he could analyze and distinguish details. In childhood we learn analogically, and only after we go to school do we begin to think analytically and digitally. We learn more rapidly in early childhood what we can see and take in as a whole; and we build up our concepts for perceiving by analogical processes. Pictures, diagrams, photographs, especially motion pictures and television presentations, are much more effective because they give the meaning or context in which individual items that are later analyzed may be grasped and understood.

A picture or visual presentation, a physical model like those of atomic or molecular structures, provides a ready step to a transactional relationship, because one can relate oneself directly to a situation, event or process, thus communicated, while it requires a struggle to master a lot of individual facts conveyed by symbols, like words and make these meaningful before they can be related to the events or situations thus symbolized.

Some students, I would say, operate digitally for the most part, just as a mature investigator or teacher learns to function digitally. These students flourish in the first two years because they can manage the flood of discrete facts they are offered. But they may find the clinical years more difficult, when they are expected to think analogically and holistically. Conversely, some students have a difficult time their first two years, finding it difficult to cope with the various medical science courses, but flourish in the last two years, because a different kind of learning, namely analogical, is involved.

Students start out in medical schools learning to think digitally in terms of discrete facts and exact quantitative relationships between two variables; then they go into the clinical years and must learn what I call "biological relativity"; that is, that every examination and quantitative finding must be attenuated or enlarged according to the patient's age, sex, previous illness, present complaint, life experience, so that each finding becomes relative to that specific individual, and to all other findings about his condition and

functioning. This calls for a different kind of thinking about the exact findings of medical science. We have not yet provided a logical or psychological bridge between the first two years and the second or final two years in medical school.

How we can learn to do that is one of the crucial problems of medical education, as I see it. The human mind operates both digitally and analogically, but we have neglected the analogical process because we have been so interested in teaching the artifacts of laboratory findings, the discrete findings, with inadequate recognition of processes that produce those findings. Could we say that if a student learns the processes involved, he need not be burdened by memorizing all the findings which he can look up when needed.

Here we see how medical education faces a number of pressing problems, in discovering ways to accept some of these new concepts and ideas, communication theories, cybernetics, transactional processes, the differences between the digital and the analogical ways of thinking, and so on. Teaching some of the new concepts and insights requires consideration of the kind of learning which takes place in students who must learn these new concepts. Educators should adapt their teaching to make possible this reorientation.

It is becoming clear that the living organism is not a closed system, such as we find in the laboratory situation, in which a preparation can be isolated from everything else and treated as a closed system. We must find ways for dealing with open systems such as the functioning, intact organism in his life space. If we are going to do this, we must find ways of teaching, utilizing a variety of new techniques and teaching aids such as the audiovisual devices to be demonstrated later in this program, also models, physical and conceptual, and direct experiences.

How can we make the transition from teaching the mechanisms we are discovering by research to an understanding of living processes, recognizing that a process may produce different products, depending upon how, when, where and what it operates upon, as medicine has long realized?

This calls for a way of thinking different from the familiar linear cause-and-effect relation, which we must use for many problems but which is not adequate for studying processes and open systems like organisms. How can we induct students into these recently formulated ways of thinking, help them to grasp concepts that are much more appropriate in biology and medicine than are the familiar, mechanical formulations taken over from physics and engineering? What kind of learning will be required if students are to give up their preconceptions and accept new concepts and to use new criteria of credibility which will supersede and replace their familiar ways of thinking, learning to think in terms that are clinically appropriate?

Since medical education is so prolonged and arduous, involving so much repetition and redundancy in the communication process, should so much of the student's time and energy and capacity be allocated to digital learning, as it now is in the first two years, learning what will be forgotten, that must be forgotten, if the student is to go on into the clinical years and learn to think and practice as a physician?

Are we clear in what we are seeking in medical education? Is our aim to train scientists who will think and work in terms of a specific discipline and be guided by its criteria of credibility? Or are we trying to encourage individuals to

develop concepts, approaches and techniques for approaching living organisms—personalities, and to use the criteria of clinical medicine? Both are necessary, but not necessarily for the same student. We are now attempting to do both, and I do not think we are very successful.

Could we teach the preclinical material so as to foster the kind of learning which will continue to be appropriate for the clinical years, as a few schools such as Western Reserve, University of Colorado and University of California at Los Angeles, are now trying to do.

Finally, are we attempting to teach young adults to become professional, or are we, in our medical and other professional schools, continuing the teaching procedures which the students have experienced all through elementary school, high school and college, thereby failing to foster the kind of learning which they need to become professionally competent?

Could we, by approaching the medical students, evoke more self-rewarding learning in the sense of recognizing their aspirations to be young adults, to be treated as soon-to-be professional individuals? I think that is very important, because as long as we continue teaching them in the old way, treating them as children, we are often perpetuating the irresponsible behavior of children and are compelled to employ methods and procedures that are inappropriate for young adult professional students.

Therefore, it seems to me that one of the things we can ask is how can we help students to learn—to learn and to continue to learn after their training period is over. I realize these questions are central in the present discussion and in the many controversies that are taking place in regard to revision in medical education.[2] Some of you will recall that many years ago Abraham Flexner, associated with the General Education Board, initiated a revolutionary new pattern in medical education, applying the then new ideas, concepts and methods in medical schools. It seems to me that we today need a new revolution; in other words, we need to utilize our present day ideas, new concepts, emerging scientific disciplines and insights and understandings to reorient medical education. Thereby we can pay our debt to Flexner by doing for today what he did for his time.

Today it seems to me we have an opportunity to carry on Flexner's efforts by a radical revision of what has been accepted and used in medical education.[7,8] In this way we can be loyal to the basic traditions of medicine.

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Symposium: Are We Good Teachers?

WHAT ARE THE FACTORS IN EFFECTIVE PEDAGOGY?

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BY INVITATION

IT seems to me that the question is always before us how to do better our task of assisting students in learning that which they must learn if they are to take their places as professional practitioners in the art and the science of ophthalmology and otolaryngology.

In order to approach the realization of this goal of more effective teaching, *I would like to suggest that we need, at the college and university level, a revolution in the methods we are using in our attempts to communicate knowledge and attitudes.*

As I listen to the complaints of medical students regarding the caliber of their instruction, I become increasingly aware that the shortage of good teachers is not peculiar to elementary and secondary schools alone, but does, in fact, extend to all levels of education, including schools and colleges of medicine. What bothers me — and somehow or other I wish it would bother you — is the fact that there is such a wide gap between theory and practice in teaching; a wide gap between what we know about better ways in communicating and what we are doing about them.

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For example, we know that in the main the lecture method affords the lowest level of opportunity for learning. Let me cite to you a report on research, entitled "An Experimental Study of the Teaching Effectiveness of Group Discussion in the Teaching of Factual Content."

After proper consideration has been given to the techniques noted, the order of differences obtained in this study indicate that the "average" student who is now receiving instruction in factual content by the lecture method may expect the following if the discussion method should be adopted: (1) the first few class sessions will show no appreciable change in the amount of factual content being learned; (2) only a few class sessions will be required before he becomes adequately skilled in the discussion method; (3) by the end of the semester he will have learned 17 per cent more factual content than under the lecture method; (4) if he is an inferior student, he will have learned 25 per cent more; (5) recognition-type questions will continue to have the same degree of difficulty, but his ability in direct recall will have increased 18 per cent, and his ability to demonstrate the functional character of his learning by giving examples will have increased 28 per cent; (6) subject-matter fields will still vary in difficulty, but he will find a proportionate increase in all; (7) finally, should he examine his memory six months after the semester is over, he will find that he is able to recall 56 per cent more factual content than he would have had he continued receiving instruction under the lecture method.

I have attempted to sabotage university and college level teaching by asking every institution in which I have held a

position to make, some three or four weeks after the last final examination period, an announcement—an announcement through the office of the President; he has that authority, you know—to the effect that every student who took an examination at such and such a time during the testing period would report back for the same examination. I am sure that the results would be just what you think they would be — and that is why my challenge has never been accepted.

Just the other day I heard some undergraduate students of our university discussing the fact that in a class from which they had just come, the instructor had finished a two-session lecture in which he reported that the discussion method, by and large, was superior to the lecture method in teaching.

Medical students continue to report a considerable amount of time spent by their didactic instructors reading to them from books which are readily available in the medical library. Didactic instructors is another obsolete term, by the way. You will discover that in education we continue to get new ideas extremely slowly and extremely seldom, but that we do get new terminology without too much trouble.

We need, I do believe, to develop in our realization that we cannot in fact teach anybody anything. *The present-day concept "to teach" is also obsolete; our task is rather to locate or create situations which encourage our students to learn.* If instructors are to teach as they would have their students learn, then they must come to realize, at something more than the verbal level, that teaching is considerably more than a telling process.

Here we note that you have a decided advantage over the liberal arts undergraduate instructor who takes the run-of-the-mill students and usually loses about 30 to 50 per cent of them between the freshman and the senior year. The student who comes to you is well above average in intelligence and, even more important, he is highly motivated to succeed. The bases for his motivation are varied, but he is motivated. It is a tribute to his insistence that he can learn in spite of the methods used.

When you are planning your courses, assuming that you do plan them, have you ever given any thought to the matter of who is responsible for the student's learning? Many people say the responsibility rests with the student. Yet many instructors — pedagogs, if you would rather—teach as if they were responsible; as if all that the student was ever going to learn, they would teach him.

Far more important than the facts—important as they may be—is the development of the attitude of the perennial learner, an attitude which must be fostered throughout the entire professional career, the entire professional life of your students.

In your field you know better than I that many of the so-called facts today are proved to be less than facts, even myths, tomorrow.

Let me make one more attempt at incurring your hostility, and then I will try to be more positive. You in medical education have been relatively free from public criticism, when compared to the public school teachers. It is not, however, due to your superior teaching; rather, I think, this is probably due to two reasons: first, the tremendous respect you enjoy as practitioners and, second, no one except the student, who by this time is relatively removed from the human life stream, knows how lousy your teaching is.

This is the first time I have ever been in a situation where I insulted someone and he laughed.

If the public school teachers of this country were as poorly prepared to teach as are the typical liberal arts and professional school instructors, the public would have every right to be as indignant as it is. *Which leads me to believe that one of the most important characteristics of the public school teacher and of the professional school teacher, is that of commitment.* We have today far too many people who are teaching for reasons other than the enjoyment of seeing others grow in their knowledge and professional attitude.

I recognize full well the importance of "knowing your stuff," if you please, but this will be of no avail if the instructor is without a commitment. You see, an instructor in medicine must not only be an excellent practitioner—to some extent, a scholar—but he must be more. He must have a commitment for teaching.

I know of no person who likes teaching and whom the students like who does not have a dedication for teaching. This is a prime factor in the teaching-learning process.

Of no less importance to effective teaching is adequate planning. I wonder how often instructors realize that it may be days, if ever, before the students know the reason for studying that which is being studied. All too often the instructor is not aware of why he is teaching what he is teaching, other than the fact that it is in the curriculum which someone else planned.

I am of the opinion, in fact I will go so far as to say that there is considerable evidence to the point, that it is in the area of planning that most college and university instructors have their greatest weakness.

Some kind of lesson planning must be carried on by all who teach, whether they be novices or masters. Lesson planning performs certain functions which are indispensable to good teaching. It forces consideration of objectives to be accomplished; it requires a selection of specific subject matter needed to achieve these goals; it requires a selection of certain procedures, the planning of certain activities, all directed toward common ends.

When we know where we are going, we know better how to test whether we have arrived there or not.

All too often testing is used to determine the degree to which the student has learned what we wanted him to learn. Seldom is it used as a technique to evaluate our own instruction, the effectiveness of our teaching. To me it is a kind of regurgitation process in which the student's success in learning is evaluated in direct proportion to his ability to give out that which has been shoved down.

Such a technique precludes creative or reflective thinking—hence, learning.

We might spend an entire day on the type of lesson planning alone, and another day on testing and evaluation alone, because of their importance. Lesson planning involves looking ahead and planning a series of activities all of which progress definitely towards the modification of the student's attitudes, his habits, his information, and his abilities in desirable directions. Without this kind of planning, there can be no steady progress nor definite outcome anticipated in a teaching-learning process.

For a minute now I would like to digress into the topic that will be effectively handled by Dick Lewis in the next few minutes. I must do this because it is so important to the teaching-learning process.

We people who purport to teach are imbued with an undue conceit. Too often, we attempt to present a subject as though all knowledge concerning it were self-contained and could only be transmitted by our own voices, when often there are much more effective ways of communicating. I submit that no longer can we rely upon ourselves as the only medium through which we may communicate to students. In some ways these comments favor this group, because we know of the tremendous strides made in medical teaching in the use of training materials. For instance, probably no group has done more pioneering in the use of television than medical educators.

However, I still find a hard core of skeptics who acknowledge the merits of these tools, and say they would really like to use them—if they just had the time. What they are saying, in fact, is, "First, I must impress the students with all I know, and if time permits I will give them a chance to learn through more effective mediums."

Now, the fact of the matter is that in many instances the instructor *per se* is the least effective medium through which students may learn.

At this point I should like to end, if you please, by beginning; that is, to say what has become the obvious. While I do not know what learning-teaching is, I do have a working definition which establishes a direction for me to go. *Learning, to me, is the process the individual undertakes when he is behaving.*

The key words here, to me, are "process," which implies continuance; "undertakes," which implies an interacting at both conscious and unconscious levels; and "behavior," the feeling, the thinking, the evaluating, the intake of knowledge.

Learning, to me, is the process the individual undertakes when he is behaving. That is, if you please, a dynamic definition—not passive. It implies involvement, not passivity, on the part of the student. We have long accepted the need for active participation in the area of training for particular motor skills. We are still babes-in-the-woods when it comes to providing students with opportunities to be trained, if you please, in the art of thinking or problem solving.

A study was reported not too many years ago wherein it was attempted to demonstrate for all time the notion that if people went through a rigorous program of mathematics and science, they would emerge greater thinkers, greater problem solvers, than if they went through the broad curriculum of candle-making, basket-weaving, and so on, which we are purported to be teaching in some of our schools.

A control was made wherein intelligence was matched—and that was about all that could be done because usually people in the upper socioeconomic level do not take trade training, and most people at the lower economic social level do not take college preparatory training. Otherwise, they were matched. One group went through the college preparatory program and the other through machine-shop, a trade training program. Pretesting and post-testing were used. At the end of four years, it was found that the people who went through a machine-shop program could solve problems as well as those who went through four years of foreign language, mathematics, and science.

I think we need to recognize that we have a long way to go in the teaching of the art of thinking—of problem solving—particularly at the higher levels. We spend so much time teaching by telling. To repeat: teaching is locating or cre-

ating situations which encourage students to learn. Or, putting it another way: teaching is the arranging of situations in which the learner will modify or change his behavior in the direction desired.

I may be talking out of turn here for some of you, but I know I would not be speaking out of turn in a lot of other schools with which I have had direct experience. My guess is that if we were to look over the incoming records of each of the students you admit, we would probably be able to predict that none of them would fail. After all, one of the criteria you use is academic aptitude. Yet, what percentage of the youngsters drop out. I wager an opinion that the greatest reason students drop out of professional school is the lack of a common purpose shared by the instructor and the student—a lack of communication, if you please. I think there is undue acceptance of a myth that just because a person is intelligent he can accumulate the information we want him to accumulate.

When I was at Northwestern University I used to take a class down to one or another of the trade schools in Chicago. Invariably, I would see some youngsters sitting on benches, arms folded, dejected looking. They fell into the stereotyped concept of mental retardation. When I asked my students to tell me their opinions of these dejected students, their answers ranged from "idiot" to "slow learner." Then I would take delight in going to the records and finding that these people had intelligence quotients higher than those of most of the people who were doing the observing.

The point I am led to establish here is that the student learns only that which he is interested in learning. Now, it sounds so simple, you might wonder why it has to be mentioned. Yet, it represents a tremendous gap, not so much in teaching and the thinking of teachers, as in the thinking of the student.

So we have the need for long-term goals which are pretty much the responsibility of the students. Then we have the short-term goals, which are essential to get through each course. And these, I think, are essentially our responsibility.

Let me offer you another point: *The purpose of what we are teaching needs to be made clear at the beginning, frequently evaluated, restated and re-evaluated.* Here we help the student learn how to look for important points, how to use the information, how to organize it into meaningful categories.

I take some sadistic pleasure in summer sessions asking graduate students—teachers—if they know the purpose for which their school is established in their community. Out of fifty, sixty or seventy, I get a half dozen hands. Then I ask, "How many of you know the specific purpose of your courses?" and perhaps two or three hands will go up. Then they are asked how many of their youngsters participate in determining these purposes; of course no one raises his hand. And then I ask them the really crucial question—how many of their purposes are stated in behavioral terms—and they don't even know what I am talking about.

Yet, is there anything we are concerned with at any level, in any kind of school, other than the behavior which the person manifests as a result of his training? So few of us take cognizance of "behavior," but speak rather of "input" and "out-put."

College professors do even less well. I am reminded of the ragtime hit of the early 20's which many of you might remember, "We Don't Know Where We're Going, but We're on Our Way."

Another point is this: *Genuine learning is not an additive experience, but a remaking of experience.*

Every person must uniquely translate whatever the instructor says so that it fits into his present meanings, needs, and purposes. The student cannot be forced into a creative translation of his classroom experiences. He cannot be coerced into translating materials which he neither understands nor feels. If he is coerced, he is both blocked and frustrated.

We teachers are prone to listen to a student's verbalizing ability rather than seek functional understandings on the part of students. For example, I am sure that if any of you were to give a true-false item in a test to the point, "For a physician to be effective with a patient, he must establish a relationship which is conducive to warm personal understanding," a third-grade student would write "True." It is silly. Yet, the tragedy comes in that the medical student knows this, but he has not learned it. He knows what the professor wants, but he cannot behave in that way.

Students have learned to substitute language, if you please, for feeling, for interest, and for motivation. You will see students row-on-row sitting there nodding their heads yes, yes, yes—and they have not heard a word you have said. But they have learned to throw up this disguise to keep us all buffaloed.

Another point is this: *Learning depends upon not knowing the answers and, further, knowing that one does not know the answers.* The only way an answer can really be fully understood is if the problem is understood. The learner must be confronted with a problem if the answer is to have meaning.

The primary function of teaching is to help the student see the problem; it is not the giving of answers, as many of the students think they have to do. For a solution or an answer to be significant, the problem must be stated and it must be understood.

A further point: *Good teaching is a process of drawing out rather than a matter of putting in.*

We do not give learning to the student. Effective learning asks that the student establish purposes. We help him in directing the activity which will lead him to his goal. Too often we create the atmosphere that the student is performing for our benefit rather than his own. For learning to be of value, it must be deeper than simply trying to please the instructor.

I realize the difficulty we sometimes experience when we try newer techniques in teaching. The tried-and-true lecture method seems to hold us in check. Yet, while it may have been tried, it is hardly true. The research data are inconclusive, but certainly substantial, that other methods involving more activity in terms of interaction rather than reaction probably are more conducive to better learning.

Trying new methods of teaching, like anything new, takes us down dark alleys, while we would rather walk in the so-called better light of tradition.

I am thinking of the story that has been told—a story so apropos at this time—of the drunk leaning up and around the lighted telephone pole in front of the door to his apartment building some feet removed. A passerby came along and said, "What are you doing?" The drunk replied, "I am looking for my key. I dropped it." So the person began helping the drunk in the search for the missing key. After his ef-

forts met with utter failure, the passer-by looked up at the drunk, still wrapped around the light post, and said, "Are you sure you lost your key here?" The drunk replied, "No, I lost it down the alley, but the light is better here."

I think so many of us want to teach "where the light is better."

Here is another point to consider: *Learning is essentially an emotional experience.*

Probably the greatest block to learning is the feeling tone relationship between the student and instructor not being comparable. Fear of loss of status on the part of the student blocks his spontaneity and creativity. The student learns early in his school years not to express himself freely. To do so is to risk social failure, economic failure, and even professional failure.

If, however, the student feels free and unthreatened in his relationship with his instructor, if the risk of recrimination and retaliation of authority is reduced, the teacher will more easily reach the student, and the student is more likely to seek out the instructor.

Actually, in our relations with students, which may be characterized as autocratic relationships, we are settling for a make-believe, counterfeit educational experience, in which bits of facts are tossed back and forth between the student and the instructor. In the process of "I give it, you take it and, oh yes, here it is back again," we find that teacher and student are agreeing to kid each other.

They bargain; and the current coin is the grade. "Give me back so much, and I will pay you accordingly."

The manner in which the student regards the instructor, and the instructor the student, is the deep and pervasive matrix of all learning.

Long after the fact is forgotten, the impression you make on the student as a human being will be remembered.

I would like to conclude with a story which has had tremendous implications for my own personal and professional development. The story has its setting in a little town outside of Boston, where I first began teaching. I was the vice principal, and, as you know, the vice principal has the discipline to contend with.

In addition to other things, I also taught industrial arts. We were a progressive school; we had both boys and girls taking industrial arts. And I can remember Eddie Leonard. Eddie Leonard has done more to help me learn about myself as a person, or if you please, as a teacher-person, than any other single individual with whom I have come in contact.

Eddie Leonard was always getting in my hair. He was in the eighth grade. I can see him now. Somebody would be painting a bookcase, and Eddie would walk around and let sawdust out of his hand—just close enough. He took tin snips and snipped off girls' braids. Another time he took a hot glue brush and not only put it in another boy's face, but turned it as he put it in.

Let me jump ahead. Some years afterwards I was at Great Lakes Naval Training Station, as Officer in Charge of the Storekeeper School. Those of you who have had military experience know that one of the peculiarities of military life is that the officers do all the thinking for you. They tell you when to get up, when to go to bed, how much to eat and how long it should take you to eat. And since we had eighty students entering every two weeks, staying for sixteen weeks, we had an orientation and indoctrination program in which I tried to explain to the students what they could

expect of me and what we would expect of them.

As I was talking to this group of eighty I saw, in the back, a familiar face. And after the orientation was over, down came this person whom I had known as Eddie Leonard in the eighth grade, now grown.

I said to Eddie, "What the devil are you doing here?" He said, "Mr. Lowe, I am going to become a storekeeper." Well, I told him, "You can't become a storekeeper, so let's not kid ourselves." Eddie Leonard drew himself up and said, "Tell you what, Mr. Lowe, I will bet you a coke a week that I will pass every test." (We had weekly examinations in effect at that time.)

Well, I am not a gambling man and, as you well know, it is illegal to gamble in the military; but when a thing is a sure thing, it is not gambling, so I took him up on it.

I will say this very briefly: It cost me three quarters of a case of Coca-Cola. Eddie Leonard graduated second from the top in that particular class.

Which brings me back to that other experience I had back in Westwood, Massachusetts. This time a woman teacher, not much taller than Eddie Leonard, brought him in. I was sitting behind that psychological barrier, sometimes referred to as the desk, when she brought him in. She said to me, "Do you know this boy?" I said, "I do. I suppose he is in trouble again." She said, "He is!" I said, "Leave him to me," though I didn't have the slightest idea what I am going to do with him. Then I attempted to apply all the psychological tricks I knew—one of which was to ignore him.

Eddie Leonard proceeded to do what he always did when he came in to see me after school: First he went around and swept all the benches; then he closed all the vices, putting the handles vertical; then he cleaned the machines, cleaned the chalkboard, and emptied the rubbish. He did all the things we had hoped we were teaching him to do during the school day.

After he had done these things, he took the seat closest to me but, of course, I continued to ignore him. When I could stand it no longer, I looked up at him and said, "Eddie Leonard, you are a strange boy. I cannot understand you. You are an entirely different person *after* school than you are *during* school." I can see Eddie Leonard today, with tears coming down both sides of his face, saying to me, "You know, Mr. Lowe, I was just thinking the same thing about you."

Symposium: Are We Good Teachers?

WHAT ARE TEACHING TOOLS AND HOW CAN THEY BE USED EFFECTIVELY?

RICHARD B. LEWIS, ED.D.
SAN JOSE, CALIFORNIA
BY INVITATION

THE first two presentations this morning have emphasized that learning is a change of behavior resulting from experience. The role of the teacher is to select, organize, and supervise the experiences designed to change the behavior of students; learning experiences may be assignments to be read in textbooks, may be lectures to be heard and demonstrations to be observed, or may be physical participation of the learner in some project or exercise.

Most learning takes place as a result of a complex combination of sights, sounds, smells, symbols, and things manipulated. These have been called *audio-visual aids*, but the term "aids" may give a false connotation: the tools used in teaching are the very *stuff* of learning experience.

This presentation is an overview of some of the devices and materials that are widely available and generally accepted as valuable tools for teaching in any field. It is the responsibility of each teaching specialist, knowing his subject matter, his students, and the objectives of the course of study, to select teaching tools wisely and to use them skillfully. The teaching specialist in a well-equipped institution will have assistance in the selection, preparation, and utilization of his materials, and thus he will be encouraged to use them.

There is an expression of concern among those who teach in medical colleges — at least among those who examine the results of their teaching critically—about the amount of knowledge, the number of skills, and the multiplicity of concepts to be mastered in preparing for service in the medical profession. The relatively small amount of time available for teaching and learning, in contrast with the vast amount of knowledge to be learned, is just cause for concern. However, few who teach have given sufficient attention to the methodology of creating changes in student behavior, and even less attention to the

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The presentation was based upon the use of slides, transparencies, models, charts, short excerpts from films, printed and duplicated materials, and other audiovisual devices. Several persons assisted in the presentation by demonstrating specialized materials. It was necessary, therefore, for the author to modify the transcript for this publication.

Persons who assisted in preparation of materials and facilitated the presentation included Richard A. Buckingham, M.D., Assistant Professor of Otolaryngology, and Maurice D. Pearlman, M.D., Assistant Professor of Ophthalmology, University of Illinois, College of Medicine; Mrs. Maria Ikenberg, Assistant to Francis L. Lederer, M.D., University of Illinois, College of Medicine; Miss Audrey M. Skaife, Administrative Assistant, Medical Audio-Visual Institute, Association of American Medical Colleges; Mr. Jack Mayer, Tecnifax Corporation; Mr. George Klauke, Polaroid Corporation; Mr. James O. James, Ditto Corporation; Mr. James Addy, Crossley Associates, representing KIN TEL of San Diego.

technologic tools at the disposal of the teacher that hold promise of making learning more efficient and teaching more effective.

For example, yesterday one of you said, in effect: When I am to give a lecture on my subject, I find it necessary to spend thirty or more minutes of my hour reviewing basic anatomy before I can plunge into my special contribution to the students. I asked: Do you have films or other materials from which the student could review the special and basic background information you want him to have before he attends your lecture? The answer was: He has no time for review.

It is my challenge to you that it is the pre-eminent responsibility of every faculty, and every teacher, to reappraise the value of faculty and student time as presently used, to find new means for self-directed study by the student that will give him the knowledge he needs at the time he needs it, to seek new procedures and new devices that make teaching more effective, and to concentrate the talent and energy of each specialist teacher on activities of optimum value to his students.

You remember this picture? [Slide] It is Alice in "Through the Looking Glass" when she and the Queen were running:

> Still the Queen kept crying, "Faster, faster," and they ran so fast they seemed to skim through the air. When they stopped, exhausted, Alice looked around. "Why, I believe we have been under this tree the whole time; everything is just as it was." "Of course it is," said the Queen. "It takes all the running you can do to keep in the same place. If you want to get someplace, you must run at least twice as fast as that."

For the next few minutes, let us examine together some of the devices that can accelerate and intensify learning. Some of them are extremely familiar, so familiar that we may have forgotten to re-examine how we use them, or we just may have forgotten to use them at all. Some of them may be new to you, or, perhaps, you have not accepted them as desirable tools for your own teaching.

MOTION PICTURES

The film clips we shall show now certainly will not teach you anything about your specialties. But, think now *why* films are not more and better used. We have asked Dr. Richard A. Buckingham (University of Illinois, College of Medicine) to comment on the first film sequence.

DR. BUCKINGHAM: The first film shows an endoscopic view of the larynx and trachea, going down to the right main bronchus and the left main bronchus.

The endoscopic camera will bring out to the student something he cannot see in any other way. There is no possibility of demonstrating these things to a large group of medical students except through the medium of photography; at the same time it gives the student a clinical view of a carcinoma of the main bronchi—as you will see. [Films]

The next film will be an endoscopic view of an eardrum. [Film] You all know the problem of trying to show students—new students in particular—an eardrum. It is impossible to do this for a large group except through the use of the camera. Again, looking at this view of the eardrum . . . will help the student to understand what he is trying to learn.

Here are examples of teaching materials made possible by technology. The following are some photographs that were made by using a still camera with appropriate accessories. They were made by specialists who know what must be shown and how to picture it.

DR. BUCKINGHAM: Another view of the eardrum, such as we have here, will show the student the appearance of an acute otitis media [Slide] and the same eardrum six weeks later after complete healing [Slide].

You are able to show the student the eustachian tube [Slide] and here we have

adenoid tissue. A large polyp is shown [Slide]. These pictures are the convenient way to show such subjects to large groups of students.

This is the Holinger-Brubaker still camera, used in making the slides you have seen [Slide]. And this is their camera used to make the motion picture films just shown [Slide]. These are examples of special tools that can make teaching materials for you.

We have hundreds of miles of medical motion pictures, and thousands of slides have been made. However, all this material must be edited with great selectivity and with a plan to make the selections valuable in teaching; and they must be provided with an appropriate commentary. They must be specially treated if they are to serve as teaching tools.

As an example of a special method in using film and slide materials, Dr. Maurice D. Pearlman (University of Illinois, College of Medicine) will demonstrate a motion picture upon which a special sound track has been placed by a magnetic process similar to that used in tape recording; simultaneously, he will use a projected slide on this screen at one side of the motion picture screen.

DR. PEARLMAN: These illustrations deal with a case of arteriovenous fistula affecting the right side. On the right screen you see a normal arteriogram and the abnormal arteriogram side by side. On the central screen is a motion picture of our patient showing proptosis, redness and immobility of the right eye. The magnetic sound track makes diagnostically apparent the loud bruit which was present.

Let me tell you about an interesting application of this two-screen technique used in teaching. Pan American Airways, in their training center in San Francisco, briefs pilots by projecting wide-screen motion pictures taken from the pilot position in their airplanes; the views are, for example, of the approach and landing at a field in some foreign country. On a smaller screen, at one side, maps normally used by the pilots are projected showing the map orientation in relation to the actual visual appearance of the area. Thus, map symbols and reality are correlated in a memorable way, at a great saving of money and time, and with great effectiveness, according to both pilots and administrators. This example, as well as that shown by Dr. Pearlman, reveals an inventive approach to teaching.

The next film has been available for many years from Encyclopaedia Britannica Films: "Ears and Hearing." In it is some rare and important live photography put together with carefully planned animated drawing sequences designed to teach (Film). Footage from a motion picture camera is only raw material for teaching; the skills of teachers, artists, and film-makers combine to make from it effective teaching tools.

We all know that films, especially those designed for the purpose, can teach. Why do we not make a concerted effort to exploit the potential of films to produce more efficient teaching and learning?

THE OVERHEAD PROJECTOR

This device is an ideal tool for lecturers (fig. 1). (Demonstrating) You face your audience, you have your materials in front of you, you can point to significant data as the audience follows the enlarged image on the screen. Note, too, that the room lights are on; students can take notes. These large slides (called "transparencies" to differentiate them from smaller projected materials) show some capabilities of the device as a teaching tool. [Slide] These line drawings were sketched by an instructor. [Slide] Note sequential exposure of ideas in this transparency as each "overlay" is placed over the basic drawing. [Slide] In this slide the elements of the

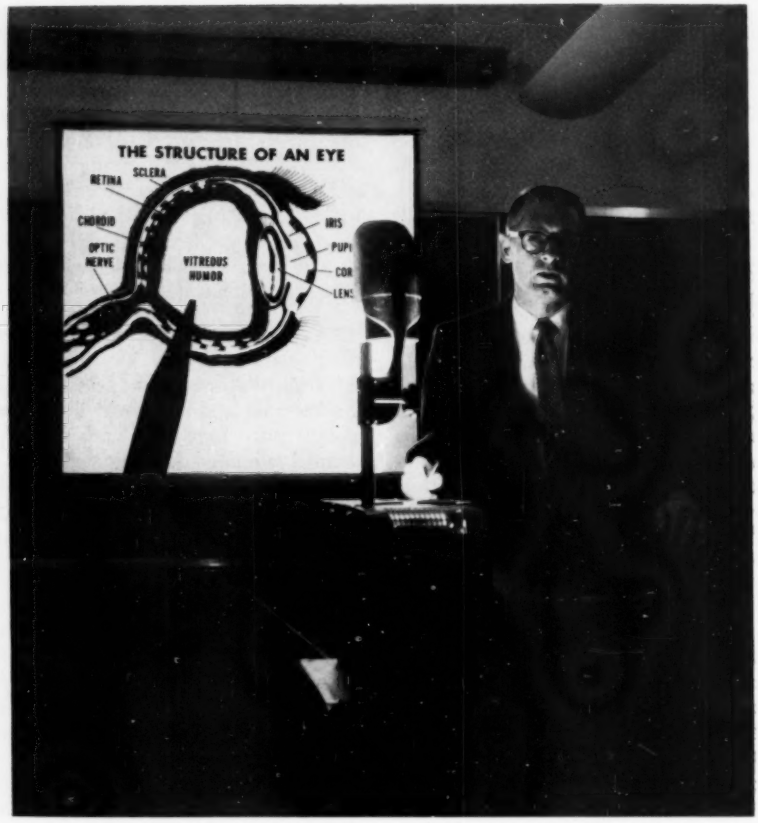

FIG. 1—Overhead projection is one of many techniques to facilitate teaching with locally prepared materials. Step-by-step presentation of technical information, in colors, is under complete control of the teacher.

human eye are added in proper sequence —and in color—in order to clarify the presentation. Now, in order to show you how materials such as these can be prepared, Mr. Jack Mayer of Tecnifax Corporation will demonstrate high-speed preparation of diazo transparencies from simple sketches on tissue paper, producing "overlays" in color. [Demonstration by Mr. Mayer]

Occasionally, you will want a slide prepared on short notice, perhaps a photograph of some interesting and rare clinical phenomenon. Teaching can be dynamic and challenging when useful materials are readily available to a class. Mr. George Klauke of the Polaroid Corporation will demonstrate the use of the Land Camera in making slides-while-you-wait. [Mr. Klauke presented a series of pictures showing the Polaroid-Land process for making slides and demonstrated by making a slide for the audience.]

The speed of the process shown you by Mr. Klauke, and the quality of the

result, should suggest to you how valuable this process may be in teaching.

GRAPHIC MATERIALS

Because of our brief time, I can but comment quickly on some of the graphic materials we have here. Do you use such devices and materials in your teaching? If you do not use them, what is the reason? Are they not available? Are they inconvenient to use? Do you question their value? As I point to them, think of possibilities for using them in *your* teaching.

Here are some models of several types and sizes; some can be disassembled, some are skillfully color coded. These provide reliable guides to learners.

Here are charts, some mounted on cloth (by a new, inexpensive, and simple process, using a material called Chartex) for durability and for convenient handling and storing. Here is a "flip chart" easel, on which drawings can be made during a presentation, or prepared before class; here is an acetate overlay over a drawing, prepared in advance, used to clarify one point in a lecture. These are felt pens, one of a number of drawing materials that permit color sketching and lettering with minimal technical skill. This is a "hot press" for permanent mounting of photographs and other illustrative materials used in teaching. This is a chalk board; the fact that it is made with a metal base permits the mounting of materials on it by magnets. Much class time can be saved by using such prepared materials in combination with the familiar white and colored chalk. And it is probably safe to say that few teachers have developed their full capacities as effective users of the chalk board.

In your hands we have placed some materials done on the fluid duplicator, thanks to Mr. James O. James, of the Ditto Corporation, who, with Mrs. James, ran the materials for us this morning. Note the simple sketch, in colors, with the appropriate key to guide interpretation; note, too, the visualized quiz, in some cases a more accurate measure of learning than a verbalized examination. Have we all thought of the fluid duplicator as a flexible, inexpensive, and desirable teaching device, and have we exploited its full possibilities?

Note, too, in the package of duplicated materials, the source directory in which are listed the materials and equipment used here today. The list is brief, of course, but it is indicative of the wide variety of teaching materials and equipment available, and the many suppliers who can give assistance to specialists developing teaching materials. We are not advertising any particular product; we are making an appeal to you as teachers to become acquainted with the tools of special value in teaching.

CLOSED CIRCUIT TELEVISION

Limited time makes it impossible for us to demonstrate everything we have here today, but I am impelled to take a few moments to discuss television. You are familiar with the elaborate and highly praised demonstrations of television as used in medical instruction. The Radio Corporation of America literature on the table at the door describes some typical installations now in use or planned for medical colleges. However, television need not be complex or costly; here is simple equipment for black-and-white television that is relatively inexpensive and that has been proved useful in many teaching situations. We have seen it used in dentistry, in surgery, and in other medical applications; it can be used with a microscope; it can be adapted for either manual or remote operation. While numerous excellent systems

of this type are now manufactured, we are grateful to KIN TEL of San Diego, California, for providing this equipment for you to see.

Now, in summary, how can we obtain and use all these resources we have explored today in our daily teaching? There are three levels of service that implement wide use of effective teaching tools in classrooms and laboratories. These services, by the way, are commonplace in many military, industrial, and educational organizations and institutions.

First Level of Service: The instructor, himself. Many individuals who teach have the talent and find time to produce films, slides, charts, models, and other teaching tools, if the institution in which they work provides facilities and machinery necessary for preparation of such materials. This level of materials preparation, however, may not be the most efficient use of instructor time and talent. Thus, the second level of service is suggested.

Second Level of Service: A center for preparation and circulation of materials within an institution. Here, artists and technicians are assigned to make teaching materials and to work directly with and for instructors. As teaching and learning problems are identified, as inefficiency in teaching is recognized, a team of talent is used to find the best materials, the best media, and the best method of subject presentation to solve the problem defined by the teacher. The teacher is the subject matter expert, but specialists with appropriate skills can help the teacher in thinking through his presentation problems and can then produce and supply effective materials as required.

Then, too, the well-organized teaching materials center also assists the instructor by locating and making available to him ready-made materials from sources outside his institution. By using these two types of instructional materials services, an instructor can improve his teaching and facilitate the learning of his students.

Third Level of Service: This level of service is within your grasp, and it is economical if properly organized and administered. Your profession and your institutions could and should support a national center for circulation and reproduction of teaching materials commonly needed in your specialties. Perhaps this Academy could sponsor such a center. In it, a few qualified people, with proper facilities and with carefully considered directives and policies to guide them, could render tremendous service to all teachers in all institutions in your fields of specialization. Such a center can be started on a relatively conservative scale, and expanded as services justify confidence and as teachers in institutions recognize and utilize the values of the services offered.

These levels of service just outlined are not at all novel. Such organizations as International Business Machines Corporation, the United States Navy, and many educational institutions have developed such programs, producing and circulating all the materials we have discussed today.

Finally, then, the responsibilities placed upon teachers today demand better, more efficient methods of teaching than have been accepted as satisfactory in the past. Just as books were once grasped as a technologic aid to learning, supplementing the voice of the teacher and placing responsibility for learning, at least in part, directly in the hand of the student, now newer technologic aids to implement teaching and learning are available in great variety. Teachers must explore these aids, must select those appropriate to a multitude of

teaching and learning tasks, and must learn to use them wisely and well. And institutions, both local and national, must devise methods of helping teaching personnel to locate, develop, and produce appropriate materials. There is ample evidence that the results will be worth the cost and the effort.

A Few Sources of Audiovisual Resources

AUDIOVISUAL EQUIPMENT
The Audio Visual Equipment Directory
National Audio-Visual Association
Fairfax, Virginia—220 pp.—$4.75
16 mm. Motion Picture Equipment
Slide Projectors
Opaque Projectors
Tape Recorders and Players
Screens
Projection Pointers
Equipment and Materials for Local Products
Filmstrip Projectors
Overhead Projectors
Special Purpose Projectors
Record Players
Tables and Stands
Film Library Equipment
Where To Buy It
Also *Trade Directory* (50¢)

DIAZO PROCESS MATERIALS
Tecnifax Corporation
195 Appleton Street
Holyoke, Massachusetts

Ozalid Corporation
Division of General Analine and Film Corporation
Johnson City, New York

GRAPHICS MATERIAL
Arthur Brown and Bros., Inc.
2 West 46th Street
New York 36, New York

Lewis Artist Supply Co.
6408 Woodward Street
Detroit 2, Michigan
and Local Art or Engineering Supplies Establishments

MAGNETS
Miami Magnet Company
3240 N. W. 27th Avenue
Miami 42, Florida

Ronald Eyrich
1091 North 48th Street
Milwaukee 8, Wisconsin

DUPLICATING MACHINES—Fluid Type
Standard
A. B. Dick
"Ditto"
(Local dealers)
"See the Yellow Pages"

POLAROID CAMERAS
Polaroid Corporation
Cambridge, Massachusetts
(Local camera stores)

FLANNEL BOARDS AND ACCESSORIES
Self Teaching Aids
9616 South Normandie Avenue
Los Angeles 14, California

John C. Winston Co.
1010 Arch Street
Philadelphia, Pennsylvania

CLOSED CIRCUIT TELEVISION EQUIPMENT
Dage Television Division of Thompson Products, Inc.
West 10th Street
Michigan City, Indiana

General Electric Company
Electronics Division
Technical Products Department
Electronics Park
Syracuse, New York

General Precision Laboratories, Inc.
63 Bedford Road
Pleasantville, New York

KIN TEL
5725 Kearny Villa Road
San Diego 12, California

Radio Corporation of America
Broadcast and Television Equipment
Commercial Electronics Products
Camden, New Jersey

Sarkes Tarzian
Broadcast Equipment Division
East Hillside Drive
Bloomington, Indiana

MODELS—CHARTS—LIVING MATERIALS—SLIDES—PLASTIC CONTAINED MATERIALS
General Biological Supply House
8200 South Hayne Avenue
Chicago 20, Illinois

Ward's Natural Science Establishment
3000 Ridge Road East
Rochester 9, New York

Denoyer-Geppert Co.
5235 N. Ravenswood Avenue
Chicago 40, Ill.

Symposium: Are We Good Teachers?

SUMMATION FOR OTOLARYNGOLOGY

ALBERT C. FURSTENBERG, M.D.
ANN ARBOR, MICHIGAN

CONTRARY to Dr. Lowe's introduction, I must say categorically and unequivocally that I welcome this opportunity to participate in this Teachers' Section. It is not often in the life of a Dean that he has an opportunity to have the last word.

I need not take your time to tell you that I do not know how to discuss medical education from the standpoint of the psychologist. I wish I did. I marvel at Dr. Frank's knowledge of the teaching processes, and his understanding of our problems.

I cannot even discuss medical education from the standpoint of the academician. I envy Dr. Lowe's ability to analyze education, and to tell us what is good and what is bad.

I can, however, discuss medical education from the standpoint of what I think the doctor needs to know in order to practice otolaryngology with credit to himself and safety to his patients. I'm going to deal, therefore, with some of the practical problems of medical education, as I see them, in the field of otolaryngology.

I believe you will agree that ophthalmologists and otolaryngologists are facing some urgent and compelling problems in American medicine today. Some of them are the result of success itself; others are obviously due to change. It is going to be necessary for our young doctors to become acquainted with these problems and to qualify to function adequately in solving them if we are going to meet the needs of education in these two fields.

If the young doctor is interested in progress, if he is concerned with our rapidly increasing population, if he believes in the miracle of prolonging life and maintaining it useful and effective, then I believe he must proceed resolutely to solve the problems important to adequate public service in these two disciplines of medicine.

What are some of these problems within our medical schools? As I have watched our medical curriculums over the years, I have been appalled at the manner in which they have grown. Certain subjects have been pushed out into the periphery, but the mass remains intact.

In my experience as dean of a medical school, I have never seen a disposition on the part of anyone to subtract something from the medical curriculum — additions being easier, our curriculums have grown by leaps and bounds until now they have become cumbersome and unwieldly. Therefore, I believe that the great challenge before us today is to

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Dean of the University of Michigan Medical School, Ann Arbor.

Presented at the *Special Program* of Teachers' Sections: Ophthalmology and Otolaryngology at the Sixty-Third Annual Session of the American Academy of Ophthalmology and Otolaryngology, Oct. 12-17, 1958, Chicago.

restructure our curriculums in a way that will offer to the medical student in a four-year period that knowledge essential to the general practice of medicine. We must revise our medical curriculums if we are going to find a place in them for ophthalmology and otolaryngology.

I should like to say with all the seriousness of which I am capable that ophthalmology and otolaryngology are important and basic principles in the practice of medicine. No doctor can conduct a general medical practice with satisfactory service to his patients unless he has a working knowledge of diseases of the eyes, ears, nose, and throat. My experience with some practitioners in our metropolitan areas, and also in rural communities in Michigan, convinces me that a very significant part of the general practitioner's daily responsibilities is in the field of ophthalmology and otolaryngology.

Moreover, there is a great demand for ophthalmologists and otolaryngologists in this country today. The field is exceedingly barren. The public is insisting upon the services of these specialists. If anyone doubts this statement, I call attention to the recent experience of one of our staff members. This young man, about to complete his training in otolaryngology, advertised with one of the ethical professional agencies for a place to practice otolaryngology. He received more than two hundred invitations to practice otolaryngology in widely distributed areas of this country.

Medical students are becoming aware of the fact that both of these fields are barren, and that they offer them an excellent opportunity for practice. It is up to us now to exert every influence to establish comprehensive programs of ophthalmological and otolaryngological training in our medical schools in order that we may properly impress our undergraduate students during their formative period of life and give them every incentive to apply for postgraduate education in these fields. We must proceed resolutely to mobilize all our resources in the interest of adequate facilities for undergraduate instruction in these essential surgical disciplines.

Come now to the important question. How can this be done? First, we must have strong leadership in academic ophthalmology and otolaryngology. We must have inspiring teachers; dedicated teachers, of recognition, and national scope; strong resourceful individuals who will command the respect of their colleagues and work diligently for the organization and development of their departments.

Let me tell you what happened one time at a meeting of a curriculum committee in one of the medical schools of this country. It was called to order for the purpose of organizing a department of otolaryngology. An argumentative discussion arose regarding the number of hours which should be given to this field—two hours a week? four hours a week? or what have you? Finally, someone said, "Why do we need otolaryngology in the curriculum anyway?" There was a vote to abandon the idea. It was carried. Three years have passed and this medical school, as far as I am aware, has not organized a department of otolaryngology.

There is another serious handicap to otolaryngology and ophthalmology in our medical schools today; namely, the exceedingly small number of autonomous departments. You know that in most of our medical schools, the divisions of otolaryngology and ophthalmology are in the department of surgery. This is certainly a serious obstacle to progress, both administratively and academically. It is only natural that the chairman of the department of

surgery is primarily interested in surgery; he will use his budget almost exclusively for surgery, and a few of the other surgical specialties, such as urology, thoracic surgery, neurosurgery, and orthopedics. If he has anything left over, he may allocate it to the departments of otolaryngology and ophthalmology, but this seldom happens.

I have had enough experience as a dean of a medical school to know that there is seldom anything left over in the surgical budget, and so the departments of otolaryngology and ophthalmology go into a period of decadence, menacing to their growth and perhaps also to their very existence.

So I say with emphasis that we must have autonomous departments of ophthalmology and otolaryngology in the medical school, and they must be under the leadership of strong, resourceful men of academic dedication who will fight for a place of dignity for these two fields in the medical curriculum.

They must obtain adequate budgets for three important purposes of their departments; medical education, research, and the care of the sick. There is no line of demarcation between these three important programs. A department is only as strong as the chain that links together good teaching, sound research and unimpeachable practice.

I should like to turn now to some genuine, practical recommendations for the education of undergraduate medical students in ophthalmology and otolaryngology.

First, teach the student how to acquire efficiency in taking histories and in examining the eyes, ears, nose and throat. This requires hours of experience with patients in the out-patient departments and in the wards. In my opinion, nothing takes the place of bedside instruction, and nothing is more important than one's ability to see the eyes, ears, nose and throat. The student must learn how to use his instruments and lights properly, and to be able to differentiate the normal from the abnormal.

Second, teach the student efficiency in the interpretation of laboratory findings, important clinical skills, and sound principles of therapeutics. I mean particularly the interpretation of audiograms, the evaluation of histopathology grossly and microscopically, the understanding of blood smears, and other common laboratory findings which come to our attention daily.

With regard to sound principles of therapeutics, teach the student the minimum use of drugs and the selection of those that will be of benefit to his patients. Teach him not to give penicillin to every patient who enters his office. Point out specifically its worthlessness in the treatment of hysterical aphonia and progressive nerve deafness. I've seen it used in such cases altogether too often.

Teach the student how to establish habits of continuing education. Study is a solitary activity — a lone accomplishment. One's best thinking one does alone. Counsel and guidance are necessary; and these are the true functions of the teacher. However, the student must develop resourcefulness and self-reliance. He must do some independent work if he is to obtain a full measure of education in medicine.

Finally, teach the student an understanding of professional and ethical principles, and a respect for them. Ethics and principles are not taught medical students by lectures. They are learned from deeds and examples. Five or six hours of preaching medical ethics means nothing compared to what the student observes in his classes, laboratories and

operating rooms. One of the best courses in medical ethics offered in our medical school today is the history of medicine. In presenting the biographies of great men in medicine, their ideals and deeds, impressive records to emulate, are presented to our students. Where character and integrity have commenced in the home, ethics will not fail of lasting recognition in the end.

Come now to my final recommendation. I should like to urge that we promote and organize a teaching institute in this American Academy of Ophthalmology and Otolaryngology. These have been conducted in a most successful way by the Association of American Medical Colleges and in some of our medical schools in this country. They are inspiring and provocative. They are organized somewhat in this manner:

The faculty meets in general assembly where three or four challenging papers, such as we have heard this morning, are presented by medical educators. They may deal with patterns of education and raise the question: What are we trying to do, and how are we going to do it? The group then divides into a number of panels, each under the leadership of a chairman who has prepared an agenda from questionnaires previously issued to all members of the faculty. The members of the various panels place themselves upon the block of self-analysis, explore their motives, evaluate their objectives, and come up with some of the right answers.

Believe me when I tell you that such a teaching institute is an auspicious time for a meeting of minds. The members of the panel make an honest, factual, nonemotional approach to their problems and arrive at a practical program of action.

An institute of this kind should be well represented by the deans of our medical schools; more important, perhaps, it should be well attended by professors and chairmen of departments of surgery. It would be a sad commentary if the American Academy of Ophthalmology and Otolaryngology, as a leading apostle of education in this country, were unable to tackle this job step by step, direct opinions to the real issues in education and find the answers to the problems which I think need to be solved in our medical schools today.

I conclude by saying that we need to find a place in the curriculums of our medical schools for ophthalmology and otolaryngology; we need to establish autonomous departments in the two fields; and we need to hold a teaching institute in these two important disciplines of medical education.

Symposium: Are We Good Teachers?

SUMMATION FOR OPHTHALMOLOGY

ALSON E. BRALEY, M.D.
IOWA CITY, IOWA

THE exciting program we have heard this morning must be brought to ophthalmologists and otolaryngologists. As I see it, our responsibility is twofold:

One is the undergraduate program of which Dr. Furstenberg has spoken, and the other is postgraduate education.

In the area of postgraduate education, I think that we, in both fields, have three responsibilities. We must train practitioners, we must train professional teachers, and we must train investigators. For the past several years, especially in ophthalmology, we have been training practitioners. We have neglected the fields of teaching and investigation.

A professional practitioner may not make a good teacher. A professional teacher of ophthalmology or of otolaryngology must be trained in teaching methods.

When should this desire for teaching be developed? It is our responsibility to develop this intrinsic desire before it is completely lost in the task of learning to "count," as we learn to "count" in ophthalmology, particularly.

Technical training overshadows the desire to teach; therefore, technical training will make practitioners. Most students are taught to "regurgitate," as has been brought out. This regurgitation is a necessary process of taking examinations, and very few of the men we get are actually ever taught to think for themselves. They are taught to retell what the professor or the teacher has been attempting to teach them. Many of the things taught by the professor are old wives' tales, only modified by the fact that they have been brought up to date.

Surely, it is necessary to remember some of these so-called fundamentals, but this never gives the student an opportunity to think for himself. When should the thinking process begin in postgraduate education? It should begin the day the man reports for his residency. If he becomes completely bogged down with nothing to do but to see one patient after another and to handle enormous services, then he only takes those facts that his teacher wants to deal out; therefore, how can he possibly learn to think for himself?

These are some of the things for which I think we should strive in developing teachers: Develop teachers who will teach the student to think for himself and not try to make him learn things we have learned as students, things that probably may be wrong.

Do we want to destroy the tremendous desire of so many of our young men

From the department of Ophthalmology, State University of Iowa College of Medicine, Iowa City.

Presented as a *Special Program* of Teachers' Sections: Ophthalmology and Otolaryngology at the Sixty-Third Annual Session of the American Academy of Ophthalmology and Otolaryngology, Oct. 12-17, 1958, Chicago.

who come to us wanting to do something? We tend to destroy it by saying, "This is the way it has always been, and therefore it is the right way." How can we develop investigators? We can develop investigators if there is the desire for investigation. We must develop investigators because these three groups are essential to our further progress.

May I reiterate that we must develop professional teachers and professional investigators, in addition to the professional practitioners. These are the responsibility of postgraduate education.

Let us try not to destroy the desire of the young resident who comes for his training, that desire to either investigate or teach, by bogging him down with an enormous amount of detail. Try not to destroy all of his initiative before he has a chance to demonstrate his own ability.

We have, then, these responsibilities that are most important not only in undergraduate education, but also in graduate education.

In the National Institute of Health, the authorities have recognized the necessity of investigators and professional teachers. A teacher may or may not be an investigator, but a teacher must recognize investigative methods. For that reason there are many ways in which a young man can be trained, and this is part of the problem of the National Institute of Health Grant Award Program. There is no best method of training. I believe the best way is to give each man an opportunity to show himself.

In Memoriam

William W. Alderdyce.....Toledo, Ohio
July 3, 1959

Marvin McTyeire Cullom.....Nashville, Tennessee
June 29, 1959

Kendall Hooper.....Flint, Michigan
July 1, 1959

Francis Lawrence Kennedy.....St. Louis, Missouri
June 13, 1959

John William Mayher.....Columbus, Georgia
July 11, 1959

Archibald Duncan McCannel.....Minot, North Dakota
July 22, 1959

Claude H. Miears.....Austin, Texas
August 5, 1959

Isidore Miller .....New York
August 12, 1959

George Henri Poirier.....Boston, Massachusetts
August 8, 1959

Robert Sellman Gray Welch.....Annapolis, Maryland
August 5, 1959

TRANSACTIONS

American Academy of Ophthalmology and Otolaryngology

Official Publication of the American Academy of Ophthalmology and Otolaryngology

Published under the direction of the Editorial Board
WILLIAM L. BENEDICT, Rochester, Minnesota, *Editor*
W. HOWARD MORRISON, Omaha, Nebraska, *Associate Editor*
HENRY L. WILLIAMS, Rochester, Minnesota, *Associate Editor*
Printed by Douglas Printing Company, 109 North 18th Street, Omaha 2, Nebraska

William L. Benedict, M.D., LL.D., Executive Secretary-Treasurer
American Academy of Ophthalmology and Otolaryngology
15 Second Street S.W., Rochester, Minnesota

EDITORIALS

EMPLOYMENT REGISTRY FOR SCIENTISTS

Since its inception in 1896 it has been the aim of the American Academy of Ophthalmology and Otolaryngology to promote and advance the science and art of medicine appertaining to the eye, ear, nose and throat. Achievement of this objective of the Academy is accomplished by education through instruction. In order to facilitate the growth of *academic ophthalmology and otolaryngology* in both the clinical and basic science areas in the various medical schools and associated hospitals and institutions across the country, it is proposed that a central position placement registry be established. This registry will serve to aid in the placement of candidates completing training who desire academic and investigative positions and will also facilitate the replacement of those already in such positions who desire, for one reason or another, to take a different position. Such a registry will be of great value to the candidates looking for positions as well as to institutions seeking to fill positions. It is proposed that this registry be administered by the American Academy of Ophthalmology and Otolaryngology in its central office.

METHOD OF OPERATION

The following procedure will be established:

1. Institutions interested in filling a position will be asked to complete a one-page "position available" form providing the registry with a description of the position and minimum general requirements which must be met by a candidate. This form will be signed by the individual authorized to sign for the institution and duplicated upon receipt at the regisistry for subsequent distribution to candidates.

2. An individual wishing to obtain an academic or investigative appointment will be asked to complete a one-page "candidate available" form outlining his general qualifications, i.e., training and experience, and describing in general terms the type of position sought. Upon receipt, this form will also be duplicated for distribution to institutions.

3. As soon as a notice of a vacancy is received, the files arranged on a position-type basis will be searched for candidates who desire such a position. The institution concerned will be sent a copy of the form of each candidate so found; this can probably be done by return mail. Periodic repeat searches will be performed (e.g., monthly) until notification that the position has been filled.

4. As soon as a candidate form is received, the files will be searched for available positions conforming to the type of position desired and copies of each institutional vacancy will be sent to the candidate.

5. As soon as each position is filled, listings will be altered accordingly. The only condition imposed on candidates or institutions for this service will be an agreement printed above the signature on each form that the institution will advise the registry immediately upon filling the position and the candidate will do likewise upon accepting a position. Thus, the operation of the central placement registry will be practically completely mechanical and impersonal.

Since the operation of such a central registry will be of considerable service to scientists in the fields of ophthalmology and otolaryngology and since it will be devoid of bias because of the procedure outlined above, it is supported without reservation by a grant from the National Institute of Neurological Disease and Blindness. Furthermore, it will be free of certain implications that would be attendant upon a direct operation carried on by the Government. The Registry will be operated by the Academy without cost, fee or obligation to anyone using the services.

The announcement of the establishment of the registry with information as to how it will be operated will be placed in various of the pertinent professional journals.

ANNUAL DUES — 1960

A change in the Constitution and By-Laws of the Academy approved at the annual business meeting on October 15, 1959, eliminates the classification of Junior and Senior Fellows. The reasons for that classification of active fellows have faded with other traditions of the turn of the century and the economic stability of the ageing specialist. Since the beginning of the Academy, the new Fellow was listed as Junior, regardless of his age, until he had paid the stipulated annual dues for twenty-five consecutive years. He then became automatically a Senior Fellow, and his annual dues were one half those of a junior. After payment of dues as a Senior for five consecutive years, he automatically became a Life Fellow and was no longer required to pay dues. The task of keeping records of fellowship was not too great when membership was relatively small. Now, however, it has become a time-consuming job that really serves no purpose. Furthermore, quite a few of the older members resent being classified as "juniors."

The classifications as revised are: Active Fellows, who shall pay dues for twenty-five consecutive years; Life Fellows, who are exempt from dues after twenty-five years of membership in good standing; Associate Fellows, whose dues are one half those of Active Fellows; Honorary Fellows, who pay no dues; Inactive Fellows, whose dues are waived by reason of poor health or retirement from practice. The dues of Active and Associate Fellows are determined annually by the Council. Beginning January 1, 1960, the annual dues of Active Fellows will be $25.00; those of Associate Fellows, $12.50.

AN IMPORTANT MESSAGE . . .

A.A.O.O. Members' Professional Liability Insurance Program

JOSEPH K. DENNIS COMPANY, INC.
Insurance Counsellors
CHICAGO, ILLINOIS

(This is the last article in a two-part series. The first article appeared in the July-August 1959 issue of the TRANSACTIONS.*)*

1. What limits of Professional Liability Insurance should a member carry?
2. What limits of liability are available through the Academy's Program?
3. To whom and how does the insured member report an incident that he feels may result in litigation against him?
4. Is local legal counsel appointed for the insured member's defense?
5. What facilities are employed in underwriting the Academy's Professional Liability Insurance Program?

Question:

1. What limits of Professional Liability Insurance should a member carry?

Answer:

A member should carry the maximum protection that is available to him, considering his income and the worth of his estate. It has long been a misguided conception that if you carry only $5,000.00 Professional Liability Insurance, this is all you would lose in the event of litigation being brought against you. This, of course, is incorrect. Everything you have, your business, your home, your entire assets, and the income for the rest of your natural life could be seriously jeopardized in the event of a high judgment awarded against you.

Question:

2. What limits of liability are available through the Academy's Program?

Answer:

The high standard established by the American Academy of Ophthalmology and Otolaryngology in its selection of doctors applying for membership enables the underwriting company to offer limits of liability up to $200,000 on each claim and a $600,000 aggregate in any one year, which is double what the average underwriting company will consider on an individually purchased basis.

Question:

3. To whom and how does the insured member report an incident that he feels may result in litigation against him?

Answer:

Immediately upon learning of any possible litigation or suit to be brought against you, the Insurance Programs Service Division of the American Academy of Ophthalmology and Otolaryngology should be notified so that action may be taken immediately. This will eliminate many possible unwarranted suits.

Question:

4. Is local legal counsel appointed for the insured member's defense?

Answer:

Legal counsel of well-trained experts in the field of malpractice insurance is made available to the members for their defense in any threat of possible litigation.

Question:

5. What facilities are employed in underwriting the Academy's Professional Liability Insurance Program?

Answer:

The underwriting company and the administration office, in keeping with the Academy's excellent reputation and high standards, are constantly endeavoring to bring you the finest service possible.

Claims are handled in the most expedient manner possible, so that regardless of whether litigation is valid or groundless, you are assured that prompt action will be taken on your behalf, using only the finest expert legal counsellors in the field of malpractice insurance.

Facilities of the administration office and the underwriting company are always at your disposal, so that any problem which might arise will be handled quickly in a professional manner. If at any time a question arises, you can be assured that only well-trained experts in the field of Professional Liability Insurance will be consulted for the answer.

You may be certain that the administration office and the underwriting company have made available to you the finest service possible, to handle all matters pertaining to Professional Liability Insurance.

If you wish additional information on the Academy's Professional Liability Insurance Program, direct your inquiries to M. Faulkner, Manager, A. A. O. O. Insurance Programs Service Division, Suite 1016 Insurance Exchange Building, 175 West Jackson Boulevard, Chicago 4, Illinois.

THE INTERNATIONAL ASSOCIATION OF SECRETARIES OF OPHTHALMOLOGICAL AND OTOLARYNGOLOGICAL SOCIETIES

Resolution Upon the Death of Moacyr E. Alvaro

WHEREAS, On July 19, 1959, it pleased the Great Physician to summon from among us one of his faithful and devoted servants, Moacyr E. Alvaro of Sao Paulo, Brazil; and

WHEREAS, Moacyr E. Alvaro gave leadership to The International Association of Secretaries of Ophthalmological and Otolaryngological Societies for fifteen years in many capacities, most especially as the illustrious President when it became Pan-American; and

WHEREAS, He advised and guided members of this Association in the highest traditions of good will, cultural interchange, and international understanding; and

WHEREAS, He visited many countries all over the Free World to counsel with those in attendance in the best interest of the medical profession he loved so well; and

WHEREAS, He acted as liaison between the International Association of Secretaries and many other ophthalmological societies, and served as an officer of many of these organizations, most notably as President and Executive Director of the Pan-American Association of Ophthalmology; and

WHEREAS, He brought honor and recognition upon the Association of Secretaries, and enabled the members of this Association to increase their influence in relation to ophthalmological cooperation in the Free World; and

WHEREAS, Moacyr E. Alvaro exemplified by these services his humanitarianism and his devotion to the highest ideals of his profession; and

WHEREAS, He had solid scientific foundation for his medical knowledge, and possessed quiet dignity and perfect balance between theory and practice; and

WHEREAS, This endeared him to those who knew him well, and created respect and admiration from those who knew him only casually; and

WHEREAS, His engaging personality won him innumerable friends the world over; therefore, be it

RESOLVED, That the Association of Secretaries rise and stand in silent tribute to the memory of Moacyr E. Alvaro, outstanding physician, eminent teacher, medical writer of note, loyal friend who can never be replaced in the hearts and minds of his colleagues; and, be it further

RESOLVED, That this Resolution be made a part of the Minutes of the Association of Secretaries, and be published in the pages of the TRANSACTIONS of the American Academy of Ophthalmology and Otolaryngology, and, be it further

RESOLVED, That this Resolution be presented to the family of Moacyr E. Alvaro.

Adopted at the annual meeting of the International Association of Secretaries of Ophthalmological and Otolaryngological Societies on Tuesday, October 13, 1959, *at the Palmer House in Chicago.*

COUNCIL MINUTES

SIXTY-FOURTH ANNUAL SESSION

October 10 and 14, 1959
Palmer House, Chicago

Present:

John H. Dunnington, Dean M. Lierle (absent from October 10 meeting), Gordon D. Hoople, S. Rodman Irvine, Lyle M. Sellers, A. C. Furstenberg (absent from October 10 meeting), Erling W. Hansen, LeRoy A. Schall (absent from October 14 meeting), William L. Benedict, Kenneth L. Roper, Eugene L. Derlacki, A. D. Ruedemann, Daniel Snydacker, Glen G. Gibson, William J. McNally, Victor A. Byrnes, Victor Goodhill, Edwin B. Dunphy.

The meeting was called to order at 9:15 a.m. by Dr. John H. Dunnington, President.

The Executive Secretary, Dr. William L. Benedict, gave the report of the Executive Secretary:

1. Fellowship (as of January 1, 1959)

Junior	5676
Senior	372
Life	524
Honorary	30
Inactive	127
Associate	8
	6737

2. Elevations to Senior Fellowship on January 1, 1959 (66 Fellows)

Lucian W. Alexander ....New Orleans, La.
William B. Allan .....New York, N. Y.
Elroy J. Avery .....Rochester, N. Y.
Oscar V. Batson .....Philadelphia, Pa.
Raynold N. Berke .....Hackensack, N. J.
Edwin J. Blonder .....Chicago, Ill.
Delazon S. Bostwick .....Ardmore, Pa.
Jeter C. Bradley .....Weaverville, N. C.
J. L. Bressler .....Houston, Texas
Morris J. Brooks .....Brooklyn, N. Y.
John D. Brumbaugh .....Akron, Ohio
Clarence J. Brown .....Sacramento, Calif.
Walter M. Bucher .....Cleveland, Ohio
William B. Clark .....New Orleans, La.
William J. Cress .....Pottsville, Pa.
Ralph W. Danielson .....Denver, Colo.
Frank W. Dimmitt .....Providence, R. I.
Warren M. Dodge, Jr. ..Battle Creek, Mich.
William H. Evans .....Youngstown, Ohio
Ralph G. Ferris .....Birmingham, Mich.
F. J. C. Fitzgerald .....Evanston, Ill.
W. Guernsey Frey, Jr. ....New York, N. Y.
Honore E. Gaudreau .....Springfield, Mass.
Harry B. Goodspeed .....Worcester, Mass.
Carl Granberry .....New Orleans, La.
Van Dyke Hagaman .....Jackson, Miss.
Sobisca S. Hall .....Clarksburg, W. Va.
Alton V. Hallum .....Atlanta, Ga.
H. Rommel Hildreth .....Clayton, Mo.
John B. Hitz .....Milwaukee, Wis.
Walter Boyd Hoover .....Boston, Mass.
William T. Hunt, Jr. ....Wynnewood, Pa.
Chevalier L. Jackson .....Philadelphia, Pa.
Lansing H. Keeler .....Jamaica, N. Y.
George F. J. Kelly .....Philadelphia, Pa.
John A. Keyton .....Dothan, Ala.
Charles Edward Kinney ....Cleveland, Ohio
Julius C. Kramer .....Sandusky, Ohio
Albert E. Leggett .....Louisville, Ky.
Abram Levy .....Bound Brook, N. J.
Walter R. Loewe .....New York, N. Y.
Jacob J. Mann .....Perth Amboy, N. J.
James H. Maxwell .....Ann Arbor, Mich.
Philip E. Meltzer .....Boston, Mass.
M. Valentine Miller .....Philadelphia, Pa.
Saul Miller .....Jamaica, N. Y.
Lafayette P. Monson ..San Francisco, Calif.
William E. Murphy .....Worcester, Mass.
W. A. Newlands .....Tarrytown, N. Y.
Morris H. Newton .....Little Falls, N. Y.
Col. Stanley G. Odom .....Covington, Ky.
Edward L. Rigley .....South Bend, Ind.
Aaron D. Riker .....Pontiac, Mich.
Meyer H. Riwchun .....Buffalo, N. Y.
Theodore M. Shapira .....Chicago, Ill.
Raphael Schillinger .....Westfield, N. J.
Herbert G. Schmidt .....Milwaukee, Wis.
Walter K. Slack .....Saginaw, Mich.
Joseph W. Taylor .....Tampa, Fla.
Phillips Thygeson .....San Jose, Calif.
Ernest E. Tippin .....Wichita, Kan.
Edward A. Waldeck .....Milwaukee, Wis.
William F. Whelan .....Philadelphia, Pa.
Samuel Henry Wilkins .....Boston, Mass.
Richard W. Wilkinson ...Washington, D. C.
Herman A. Winkler .....Providence, R. I.

3. Elevation to Life Fellowship on January 1, 1959 (61 Fellows)

George E. Adkins .....Jackson, Miss.
Francis Heed Adler .....Philadelphia, Pa.
Daniel Harbert Anthony ...Memphis, Tenn.
Sidney S. Aronson .....Indianapolis, Ind.
Thomas Ernest Atkinson ....Greeley, Colo.
Saul E. Barnett .....Detroit, Mich.
Joseph E. Beideman .....Norristown, Pa.
Ernest A. Bredlau .....Chicago, Ill.
Thomas E. Briant ...Welland, Ont., Canada
Nathan A. Bolotow .....Providence, R. I.
Edgar P. Cardwell .....Newark, N. J.
John M. Carter .....Detroit, Mich.
Robert J. Childers .....Plainfield, N. J.
Alfred J. Cone .....St. Louis, Mo.
P. S. Constantinople ....Washington, D. C.
Morris M. Davidson .....Austin, Texas
Fred W. Dixon .....Cleveland, Ohio
Robert Austin Duncan ....Amarillo, Texas
Georgiana Dvorak-Theobald ..Oak Park, Ill.
William Murray Good ....Waterbury, Conn.
Glenn G. Gordon .....Sacramento, Calif.
James N. Greear, Jr. .....Reno, Nev.
Edward W. Griffey .....Houston, Texas
M. Reese Guttman .....Chicago, Ill.
F. Herbert Haessler .....Milwaukee, Wis.
William L. Hanson .....East St. Louis, Ill.
Carl Hobart .....St. Louis, Mo.
Charles Hofling .....Cincinnati, Ohio
Gordon D. Hoople .....Syracuse, N. Y.
Wendell L. Hughes ..Hempstead, L. I., N. Y.
William John Keefe ....Mt. Vernon, N. Y.
George L. King .....Alliance, Ohio
Margaret N. Kleinert .....Boston, Mass.
Ezra E. Koebbe .....Columbus, Neb.
Harry H. Lamb .....Davenport, Iowa
Thurber LeWin .....Buffalo, N. Y.
Emil R. Mayerberg .....Wilmington, Del.
Clarence J. McCullough ..Washington, Pa.
William Edward McGarvey ..Jackson, Mich.
M. Paul Motto .....Cleveland, Ohio
C. Stewart Nash .....Rochester, N. Y.
Paul R. Nemours .....Seattle, Wash.
Mort D. Pelz .....Miami, Fla.
Forrest J. Pinkerton ....Honolulu, Hawaii
James J. Richardson ....Fort Worth, Texas
Mayo Robb .....Phoenix, Ariz.
Philip L. Romonek ....Beverly Hills, Calif.
Harry C. Rosenberger .....Cleveland, Ohio
C. Wilbur Rucker .....Rochester, Minn.
Jay Besson Rudolphy .....Philadelphia, Pa.
A. D. Ruedemann, Sr. .....Detroit, Mich.
Bernard Samuels .....New York, N. Y.
Virgil J. Schwartz .....Minneapolis, Minn.
Benjamin Harrison Shuster, Philadelphia, Pa.
John R. Simpson .....Huntingdon, Pa.
Carroll L. Smith .....Spokane, Wash.
Ruric N. Smith .....Tulsa, Okla.
J. Marion Sutherland .....Detroit, Mich.
Isaac S. Tassman .....Philadelphia, Pa.
Robert Jay Warner .....Nashville, Tenn.
Fletcher Woodward ....Charlottesville, Va.

4. Deaths (January 1958 to January 1959) (90 Fellows)

Arthur Francis Ash .....Weehawken, N. J.
Otto Barkan .....San Francisco, Calif.
August L. Beck .....New Rochelle, N. Y.
Richard Parker Bell, Jr. ....Cleveland, Ohio
Leopold Benno Bernheimer ....Chicago, Ill.
Irvin Myron Birenboim ..Kansas City, Mo.
William D. Black .....St. Louis, Mo.
Guy Lee Boyden .....Portland, Ore.
Daniel W. Brickley .....Marion, Ohio
Harry F. Byrnes .....Springfield, Mass.
Clyde Robert Cowan ..Buzzards Bay, Mass.
Elmo Eugene Dillon .....Homewood, Ill.
Edward John Donnelly ....Philadelphia, Pa.
Edward Philip Drescher ....Berkeley, Calif.
Howard Victor Dutrow .....Dayton, Ohio
Horace Greeley Dwiggins ..Tuskegee, Ala.
Howard D. Fallows .....Mason City, Iowa
Ivan Fawcett .....Wheeling, W. Va.
Ralph Albert Fenton .....Portland, Ore.
Everett Russell Ferguson ..Cleveland, Tenn.
Maxwell Fineberg .....St. Louis, Mo.
Charles Howard Gordon ..Portland, Maine
Edwin Albert Griffin .....Brooklyn, N. Y.
Milus Liddell Gunn .....Harlan, Ky.
Harry H. Haggart .....Cincinnati, Ohio
Alfred W. Haskell .....Portland, Maine
William Jacob Hertz .....Allentown, Pa.
J. McChesney Hogshead, Chattanooga, Tenn.
Jaroslav H. Hulka .....Flushing, N. Y.
V. Reeves Hurst .....Longview, Texas
Chevalier Jackson .....Schwenkville, Pa.
Charles Isaac Johnson ..Chestnut Hill, Mass.
Cecil Frederick Johnston ..Bluefield, W. Va.
A. Spencer Kaufman .....Philadelphia, Pa.
Lowell W. King .....Salem, Ohio
Henry Kirkpatrick .....Hants, England
Hugh A. Kuhn .....Hammond, Ind.
Fritz Lassen .....Pueblo, Colo.
Richard Ormond Leavenworth ....St. Paul, Minn.
Henry B. Lemere ....Laguna Beach, Calif.
Alfred Lewy .....Chicago, Ill.
Alfred Francis Luhr, Sr. ....Buffalo, N. Y.
Wayland Hoyt Maloy ....Shenandoah, Iowa
John Hollis Matheson ..Des Moines, Iowa
Joseph L. McCool .....Monrovia, Calif.
James Harold Mendel ....Coral Gables, Fla.
Louis Charles Menger ..Kew Gardens, N. Y.
Frederick William Merrifield ..Wilmette, Ill.
H. F. Minor .....Memphis, Tenn.
William H. Minton .....St. Joseph, Mo.
William Mithoefer .....Cincinnati, Ohio
William F. Molt .....Indianapolis, Ind.

Daniel Cameron Montgomery ....Greenville, Miss.
David Jacob Morgenstern ..Brooklyn, N. Y.
Edmonde DeWitt Neer ...New York, N. Y.
Fritz Nelson .....Colorado Springs, Colo.
Max Nisselson .....New York, N. Y.
Carl M. Oberg .....Minneapolis, Minn.
Dennis Francis O'Connor ....South Orange, N. J.
Theodore Felix Paprocki, Ogdensburg, N. Y.
Sir John Herbert Parsons .London, England
John C. Peterson .....Lincoln, Neb.
Frank Wilmore Poindexter .Newport News, Va.
Lawrence T. Post .....St. Louis, Mo.
Robert Linton Ralston ..Spartanburg, S. C.
Morris Munice Rossman .....Freeport, L. I., N. Y.
Martin V. Russell .....El Dorado, Ark.
Francis S. Schwarz, Jr. ....Shaker Heights, Ohio
William Ewing Shahan .....St. Louis, Mo.
Isadore Maxwell Shapero ..Rochester, N. Y.
William G. Shemeley, Jr. .....Darby, Pa.
R. Newton Sherman ..Bradenton Beach, Fla.
Morton Thelman Siegel .....Covina, Calif.
Olga L. Sitchevska .....New York, N. Y.
William Steinman .....Miami, Fla.
Howard Leigh Stitt .....Cincinnati, Ohio
Russell Hope Strange ..Mt. Pleasant, Mich.
Edwin Forbes Tait .....Norristown, Pa.
Ricardo Tapia y Fernandez ..Mexico, D. F.
Martin Clever Taylor .....Pittsburgh, Pa.
Charles Alston Thigpen ..Montgomery, Ala.
Francis W. Thomas .....Columbus, Ohio
Henry Eagle Thomason ....Summers, Ark.
Everett Hale Tomb ....Framingham, Mass.
Gabriel Tucker .....Rosemont, Pa.
Oscar Lloyd Veach .....Sheridan, Wyo.
David Edmund S. Wishart ...Toronto, Ont., Canada
Hugh Claibourne Wolfe ..Greensboro, N. C.
Doris Surles Woolsey .....St. Louis, Mo.
William Zentmayer ....Merion Station, Pa.

5. Resignations Received (7 Fellows)

Clifford Francis Brunk, Traverse City, Mich.
Charles Edgar Davies ....Vancouver, B. C., Canada
Volney Butman Hyslop ....Milwaukee, Wis.
Burton Edward Lovesey ....Natick, Mass.
James Miles O'Brien ....Bridgeport, Conn.
William Paul Speas ..Winston-Salem, N. C.
Albert S. Winer .....Washington, D. C.

6. Requests for Inactive Fellowship (21 Fellows)

Rea Ernest Ashley ....San Francisco, Calif.
C. Hugh Bloom .....Jupiter, Fla.
Ella M. A. Enlows ..Fort Lauderdale, Fla.
George Burroughs Garlick, Bridgeport, Conn.
Henry V. Hanson .....St. Paul, Minn.
J. A. Werner Hetrick ....New York, N. Y.
William Oscar La Motte ....Hockessin, Del.
John Kent Leasure .....Indianapolis, Ind.
Leslie Layton McCoy .....Seattle, Wash.
Paul Guthrie Moore ..Shaker Heights, Ohio
William A. Morgan .....Washington, D. C.
N. Vern Peterson .....Avon Park, Fla.
Marilyn Martin Rigg .....Pasadena, Calif.
Walter C. Royals .....Metairie, La.
Max Ruttenberg .....Margate City, N. J.
Harry Schluederberg .....White Stone, Va.
Hugh William Schwartz ....Bedford, N.S., Canada
Meyer Silberman .....Forest Hills, N. Y.
J. Morrisset Smith .....New York, N. Y.
Wilhelm E. Stern .....Brooklyn, N. Y.
Herbert T. White .....Flint, Mich.

7. Delinquent (3 Fellows)

8. New Fellows Elected 1958 (included in total membership count of 6,737)

Juniors	264
Associates	5
	269

9. On November 21, 1958, the Executive Secretary-Treasurer sent out a mail ballot to the Council requesting that the following changes be made in the activities of the Committee on the Standardization of Tonometers: (1) that the three existing stations be combined into one located at Western Reserve University, (2) that the routine work at this station be done by a half-time technician at a salary of $2,000 to $2,400 per annum, to be paid by the Academy, (3) that the Academy also defray the running expenses of the station, purchase of new, or replacement of old, measuring instruments, shipping of tonometers and miscellaneous expenses, and (4) that as heretofore, all fees for the testing procedure be collected by the Academy, but that these fees be raised in proportion to the increased costs. The Council vote was 16 to 2 in favor of the proposal. The proposal was put into effect in March 1959.

10. Dr. Victor A. Byrnes, St. Petersburg, Florida, was appointed to represent the American Academy of Ophthalmology and Otolaryngology at a meeting on health problems at the Department of Health, Education and Welfare in Washington, D. C., on December 10, 1958. Dr. Byrnes has submitted

a report of this meeting to the Activities Committee.

11. On January 12, Dr. John H. Dunnington appointed Drs. Edmund P. Fowler, Jr., and Norton Canfield as representatives from the American Academy of Ophthalmology and Otolaryngology to a meeting conducted by the Hearing Aid Industry Conference, Inc., to be held in New York on February 17, 1959. Neither Dr. Fowler nor Dr. Canfield was able to attend this meeting.

12. On February 10, 1959, on the recommendation of the President, Dr. John Dunnington, with the approval of the Program Committee, Dr. John Kirchner of New Haven, Connecticut, was appointed Co-Chairman of the Teachers' Section for Otolaryngology.

13. On February 20, 1959, Dr. John Dunnington, with the approval of the Program Committee, appointed Dr. Peter N. Pastore of Richmond, Virginia, Associate Director of the Home Study Courses for Otolaryngology.

14. On the recommendation of the Committee on Ophthalmic Pathology, grants for scholarships in ophthalmic pathology were made to Milton Boniuk, M.D., Philadelphia, July 1, 1959 to July 1, 1960; Gloria Lim, M.D., Manila, Philippines, September 1, 1960, to September 1, 1961.

15. Dr. Victor A. Byrnes was appointed to represent the American Academy of Ophthalmology and Otolaryngology at the Second National Conference on World Health, which was held in Washington, D. C., May 7 through 9, 1959. Dr. Byrnes has submitted a report of this meeting to the Activities Committee.

16. The Executive Secretary-Treasurer, on June 15, 1959, referred to the Research and Finance Committee a special request from Dr. Michael J. Hogan that Mrs. Ardith Moyers be employed for the year 1959-1960 as full-time secretary of the Committee on Ophthalmic Pathology at a salary of $341.00 per month for 12 months beginning July 1, 1959. Her services are needed in revision of the Atlas of Ophthalmic Pathology. Dr. Hogan also requested that the Academy pay the travel expenses of Dr. Lorenz E. Zimmerman from Washington to San Francisco and return so that Dr. Zimmerman and Dr. Hogan might edit the revised text of the Atlas. Dr. Hogan also requested an appropriation of $500.00 for office expenses. The vote of the Committee was unanimous in favor of the requests of the Committee on Ophthalmic Pathology. The special appropriations were put into effect as of July 1, 1959.

17. Dr. John Dunnington appointed Dr. Derrick Vail to represent the American Academy of Ophthalmology and Otolaryngology as a delegate to the Oxford Ophthalmological Congress, July 1 through 4, 1959.

18. On August 21, 1959, the Olmsted County, Minnesota, deputy sheriff served the Executive Secretary-Treasurer with a summons to appear at the City Hall, Chicago, Illinois, on August 31, 1959. The Secretary was served with a statement of claim by Dr. Louis R. Lang of Silver Spring, Maryland, against the Hotel Sherman and the American Academy of Ophthalmology and Otolaryngology in the amount of $9,500.00. The plaintiff claimed that on October 15, 1957, while he was attending a meeting of the Academy Committee on Reconstructive Plastic Surgery at the Hotel Sherman, he tripped and fell and was severely and permanently injured. The plaintiff claims that there was inadequate lighting in the meeting room. The summons was turned over to our insurance agents. The matter is still pending.

19. The Committee on Research and Finance submits for Council consideration a proposed *Educational Trust of the American Academy of Ophthalmology and Otolaryngology*. The proposal is presented in the form of an agreement made by and between the American Academy of Ophthalmology and Otolaryngology, an unincorporated association, as grantor, and the First National Bank of Minneapolis, Minnesota, as Trustee.

The purpose of the trust is to provide agency custody of the educational fund of the Academy and disbursement of income and capital if necessary and desirable for the following purposes:

1. To promote advanced study in the basic sciences of pathology, chemistry, bacteriology and virology, physics and mathematics, in such institutions and laboratories as may be approved by the Educational Trust Disbursement Committee.

2. To encourage the training of teachers in the basic sciences appertaining to ophthalmology and otolaryngology and to encourage professional education and scientific research in the medical schools and hospitals approved by the Educational Trust Disbursement Committee.

The proposed Trust Agreement has been approved by the Trust Department of the First National Bank of Minneapolis, Minnesota, and by legal counsel for the Academy, Messrs. Pemberton, Michaels, Bishop and Seeger, in conformity, with the statutes of the State of Minnesota and the rules and regulations of the Internal Revenue Department of the State of Minnesota and the U. S. Treasury Department. The powers of the Educational Trust Committee and the trustees are clearly stipulated in the agreement and are designed to safeguard and to facilitate proper use of the educational fund within the manner prescribed by law for educational trusts.

It is further recommended that the Council establish The Educational Trust Disbursement Committee consisting of the duly elected President, President-Elect and the Executive Secretary-Treasurer of the American Academy of Ophthalmology and Otolaryngology.

A motion to amend paragraph 1, deleting the words *of pathology, chemistry, bacteriology and virology, physics and mathematics,* and substituting the words *appertaining to the specialties of ophthalmology and otolaryngology,* was seconded and carried.

20. The following report on the Academy insurance program has been received in the Secretary's office:

During the year 1952 the Academy under the guidance of its Officers and Executive Council studied various Programs of Group Insurance that could be made available to Members of the Academy. On the date of July 1, 1952, the first Program of Group Insurance was conceived and made a reality for the Members. Subsequently, the Academy's Portfolio of Group Insurance has been broadened to include the following Programs:

1. Accident-Sickness Disability Income Protection
2. Accidental Death, Dismemberment and Loss of Eyesight Protection
3. Professional Liability Insurance Protection
4. Professional Overhead Expense Insurance
5. Major Hospital Insurance
6. Group Life Insurance
7. Retirement-Income Annuity

1. ACCIDENTAL-SICKNESS DISABILITY INCOME PROTECTION (UNDERWRITING COMPANY— CONTINENTAL CASUALTY COMPANY)

This Program of Group Insurance was made available to Members of the Academy on the date of July 1, 1952. It provides Three Plans of coverage the Member may elect to participate in. The first plan provides the Insured Member $50.00 Weekly while he is disabled, the second plan provides $75.00 Weekly, and the third plan $100.00 Weekly. In addition to the Income Benefits there are Benefits for Partial Disability, Hospital Confinement, Accidental Death, Dismemberment and Loss of Eyesight, and Polio and Dread Disease Expense Benefits. If the disability is due to Sickness, benefits are payable from the first day of hospitalization or the eighth day of disability and may continue for as long as Two Years under the Basic Plan or for as long as Five Years under the Extended Plan. If disability is due to Accident, income benefits are payable from the first day of disability and for as long as a Lifetime in both the Basic Plan and the Extended Plan.

On the date of July 1, 1954, the Basic Academy Program was broadened because of good experience, to include an Extended Plan, which is mentioned above.

On the date of July 1, 1959, the Weekly Income Benefits were increased 10% at no additional premium, because of good experience.

Presently there are 1,858 Members Insured under this Program.

2. ACCIDENTAL DEATH, DISMEMBERMENT AND LOSS OF EYESIGHT PROTECTION (UNDERWRITING COMPANY— EMPLOYERS MUTUAL CASUALTY CO.)

This Program of Insurance was made available to Members of the Academy on the first day of March, 1956. It provides up to $200,000 of protection for Accidental Death, Dismemberment and Loss of Eyesight.

On the date of October 15, 1957, and because of good experience, the Academy's Program was broadened to make this coverage available to the Spouse of the Member.

On the date of March 1, 1958, a reduction in premium was effected with this Program. The original rate of premium was $1.35 per $1,000 on the first $100,000 of coverage. The new rate schedule affords a premium of $1.25

per $1,000 for the first $100,000 of coverage. This rate reduction was made possible through good experience.

There are presently 434 Members Insured under this Program.

3. PROFESSIONAL LIABILITY INSURANCE (UNDERWRITING COMPANY—INTERSTATE FIRE AND CASUALTY COMPANY)

On March 1, 1959, due to the high loss ratio experience of the Employers Mutual Casualty Company, they asked for termination of the above Program, and this coverage was placed with the Interstate Fire and Casualty Company. The rate of premium charged by the Interstate is as much as 20% below State Bureau Individual Rates. There are only three States, namely, Washington, Oregon and Florida, where this rate reduction cannot be applied.

The Interstate Fire and Casuality Company experience to date has been most satisfactory and the continuance of good experience eventually should effect a rate reduction. This is far from the trend regarding individual policies where we have been advised in 1960, the State Bureau Rates on individual coverage will be increased. In addition, most Underwriting Companies have retired from Underwriting of this form of coverage.

Since the Interstate Fire and Casualty Company have taken over this coverage, they have increased the limits from $100,000/300,000 to $200,000/600,000 limits, which was a request from many of the Academy Members that the Interstate Fire and Casualty Company agreed to.

Presently there are 1,356 Members Insured under this Program.

4. PROFESSIONAL OVERHEAD EXPENSE INSURANCE (UNDERWRITING COMPANY—AMERICAN CASUALTY COMPANY)

On the date of November 1, 1957, a Program of Overhead Expense Insurance was made available to Academy Members providing up to $1,000 per month coverage. This Program provides the Insured Member reimbursement of Office Expenses incurred while he is disabled and unable to perform his professional duties.

Presently there are 915 Members of the Academy Insured under this Program.

5. MAJOR HOSPITAL INSURANCE (UNDERWRITING COMPANY—AMERICAN CASUALTY COMPANY)

This Program of Group Insurance was made effective November 1, 1958. This Program provides the Member and his Dependent Family up to $15,000 of Hospital Expense coverage. There are Three Plans to choose from, $100.00 Deductible, $300.00 Deductible, and $500.00 Deductible.

Presently there are 506 Members Insured under this Program and applications are being received daily.

6. GROUP LIFE INSURANCE (UNDERWRITING COMPANY—MASSACHUSETTS MUTUAL LIFE INSURANCE COMPANY)

So that the Academy would have a complete portfolio of Insurance, a Program of Group Life Insurance was made effective January 1, 1959.

The Group Life Insurance Program provides the Member maximum coverage at attained age for a minimum annual deposit of $100.00. This coverage is continued to age 70.

7. GROUP RETIREMENT-ANNUITY PROGRAM (UNDERWRITING COMPANY—MASSACHUSETTS MUTUAL LIFE INSURANCE COMPANY)

This Program was made available on the basis of a Member contributing from $200.00 annually up to no maximum. The Retirement Income starts at age 65 and due to this Program being on a group basis, it provides a 10% advantage in income benefits at age 65 compared to comparable coverage purchased on an individual basis.

Due to the number of individuals enrolled to date in this Program, it has not been made effective. However, the Underwriting Company, the Massachusetts Mutual Life Insurance Company, has agreed to a further solicitation of the membership to determine if fifty more would enroll in same. If so, the Program would be made effective immediately.

21. Report on the 1958-1959 Home Study Courses:

Yearly Summary of Activities
October 1959

Early this year Dr. Ben H. Senturia resigned as Associate Secretary for Home

Study Courses, in charge of Otolaryngology. He was succeeded by Dr. Peter N. Pastore, Professor and Chairman of the Department of Otology, Rhinology, Pharyngology and Laryngology, Medical College of Virginia, Richmond, Virginia.

REGISTRATIONS

Record of registrations for the nineteen years the Home Study Courses have been offered by the Academy:

YEAR	OPHTHALMOLOGY	OTOLARYNGOLOGY	TOTAL
1940-1941	301	114	415
1941-1942	238	117	355
1942-1943	163	81	244
1943-1944	126	74	200
1944-1945	175	84	259
1945-1946	290	112	402
1946-1947	353	191	544
1947-1948	436	220	656
1948-1949	375	230	605
1949-1950	317	184	501
1950-1951	244	117	361
1951-1952	301	130	431
1952-1953	240	105	345
1953-1954	265	111	376
1954-1955	235	134	369
1955-1956	254	125	379
1956-1957	279	156	435
1957-1958	259	122	381
1958-1959	272	171	443
TOTALS	5,123	2,578	7,701

Last year there was a significant increase over the previous year in the enrollments for the Course in Otolaryngology—40%. At the same time the increase in Ophthalmology registrations was 5%. The enrollment this year will be slightly higher than last for both Courses, and the total will be the highest it has ever been except the four years immediately following World War II. Present registrations for the current Courses, with comparative figures for the same date last year, are:

YEAR	OPHTHALMOLOGY	OTOLARYNGOLOGY	TOTAL
October 1, 1959	274	181	452
October 1, 1958	256	159	415
Increase	18	22	40

The percentage of registrants who sent in all papers for the 1958-1959 Courses was somewhat larger than two years ago when these figures were last compiled.

For 1956-1957: 33% in Ophthalmology completed the Course
36% in Otolaryngology completed the Course

For 1958-1959: 42% in Ophthalmology completed the Course
43% in Otolaryngology completed the Course

During the enrollment period this year an unusually large number of applications from Canada were noted. A check of the files for this and three previous years provided the following figures on Canadian registrations:

YEAR	OPHTHALMOLOGY	OTOLARYNGOLOGY	TOTAL
1956-1957	10	3	13
1957-1958	9	6	15
1958-1959	8	4	12
1959-1960	27	7	34

FACULTIES

New Appointments

For Ophthalmology
Elmer J. Ballintine
(Associate for Physiology)
Charles J. Campbell
(Associate for Optics and Principles of Biomicroscopy)
George N. Wise
(Associate for Ophthalmoscopy and Medical Ophthalmology)

For Otolaryngology
None

Changes in Status

For Ophthalmology
Senior to Consultant: Irving H. Leopold
Associate to Senior: Bourne Jerome
Robison D. Harley

For Otolaryngology
None

APPRECIATION NOTES

Engraved notes of appreciation are sent to nonfaculty members who assist with the marking of papers. These notes have the personal signatures of the president of the Academy, the executive secretary-treasurer, and the secretary and associate secretary for Home Study Courses. The names of individual recipients are engrossed on the notes.

PUBLICITY

The following media were used during the past year for publicizing the Home Study Courses:

Announcements in the specialty journals for Ophthalmology and Otolaryngology
Poster announcements sent to heads of departments of Ophthalmology and Otolaryngology in medical schools, and in hospitals approved for residency training
Listing in the Postgraduate Courses issue of the A.M.A. Journal
Miscellaneous editorials and announcements in the Academy TRANSACTIONS

PRE-LUNCHEON MEETINGS

During the 1958 Academy Meeting the Ophthalmology and Otolaryngology Home Study Courses faculties met separately before the Faculty Luncheon, for brief discussions of matters related to their respective Courses. A favorable vote resulted in the decision to have similar meetings again in 1959.

DISCUSSION PERIODS

Discussion Periods based on the Home Study Course in Ophthalmology are offered as a part of the 1959 instruction course program. They are set up as a ten-hour continuous course, cost $20.00, except that all 1958-1959 registrants for the Home Study Course in Ophthalmology have been notified that complimentary tickets are available to them.

EXHIBIT

A Home Study Courses exhibit is being shown this year in the West Corridor adjacent to the Foyer to the Grand Ballroom.

FREE REGISTRATION FOR THE ACADEMY MEETING

Registrants for the 1958-1959 Home Study Courses were offered free registration for the Academy Meeting this year.

HOME STUDY COURSES IN OTHER COUNTRIES

India

Some of the ophthalmologists and otolaryngologists in India are making an effort to set up a program to utilize our Courses. Almost every year we have one or two registrations from India, but because of the great distance and high cost of air mail postage, it is not practical for the young doctors there to take the Courses and submit papers to be corrected and evaluated. We have one ophthalmologist from that country enrolled this year who insisted upon having papers corrected, and paid an extra $20.00 to have material sent to him by air mail.

Chile

An ophthalmologist from Chile who is in this country for postgraduate work is taking the Course here this year with the purpose of working out a plan to use it in Chile.

Scandinavian Countries

Dr. Knud K. Dreisler, who set up a plan last year for using our Course in Ophthalmology in the Scandinavian countries, is very enthusiastic about the results, and the program is being continued.

We have had an inquiry about a similar plan for Otolaryngology, but it has not been activated.

Brazil

Reports indicate that a Home Study Course in Ophthalmology, based on our material, is well established in Brazil.

Colombia

A young ophthalmologist in Bogota, who took the Home Study Course twice while he was in this country for postgraduate training, has enrolled again this year. He advises that a group of his confreres will use the material as a basis for discussion at biweekly meetings.

DANIEL SNYDACKER, M.D.
PETER N. PASTORE, M.D.
Secretaries

October 1, 1959

Dr. LeRoy Schall moved that the report of the Executive Secretary be accepted as read. The motion was seconded by Dr. S. Rodman Irvine and carried.

II

The Treasurer, Dr. Benedict, submitted the audit for 1958 made by Byers, Wobschall and Miller, Certified Public Accountants, and the financial status of the Academy as of September 30, 1959. (*The audit for* 1958 *appeared in the July-August* 1959 *issue of the* TRANSACTIONS. *The financial status of the Academy as of September* 30, 1959, *uncertified, is published herewith.*)

EXHIBIT "A"

AMERICAN ACADEMY OF OPHTHALMOLOGY AND OTOLARYNGOLOGY

Balance Sheet as of September 30, 1959

ASSETS

Current Assets:			
Cash on Hand		$ 25.00	
Cash in Banks:			
Northwestern National Bank of Rochester	$108,425.10		
First National Bank of Minneapolis	1,293.01		
Bank of Montreal, Toronto, Canada	1,571.16	111,289.27	
Membership dues, delinquent		830.00	
Accounts receivable, others		3,063.10	
Inventories:			
Abstracts, Manuals, Monographs and Bound Volumes	$ 28,584.60		
EMBRYOLOGY OF THE EAR album of prints	226.49		
EMBRYOLOGY OF THE EYE filmstrips and slides	1,280.00	30,091.09	
Total current assets			$145,298.46
Investments:			
Educational Fund	$346,636.23		
Wherry Memorial Lecture Fund	5,400.00	$352,036.23	
Plus: Advance in market values as of 12/31/58		64,769.60	
Total investments			416,805.83
Fixed Assets:			
Furniture and fixtures	$ 21,107.27		
Less: Reserve for depreciation	11,280.47	$ 9,826.80	
EMBRYOLOGY OF THE EAR film project	$104,516.62		
Less: Reserve for depreciation	46,641.76	57,874.86	
EMBRYOLOGY OF THE EYE film project	$ 41,775.00		
Less: Reserve for depreciation	39,685.75	2,089.25	
Total fixed assets			69,790.91
Deferred Charges:			
ATLAS OF OTOLARYNGIC PATHOLOGY		$ 23,208.96	
ATLAS OF SLIT-LAMP BIOMICROSCOPY		15,885.35	
Prepaid expenses		93.20	
Prepaid insurance		555.37	
Prepaid postage		93.35	
Total deferred charges			39,836.23
TOTAL ASSETS			$671,731.43

LIABILITIES AND NET WORTH

Current Liabilities:				
Accrued Social Security tax			$ 163.45	
Accrued Withholding tax			1,145.09	
Advance payments:				
Membership dues			125.00	
Bound Volumes and Manuals			4,293.50	
Total current liabilities				$ 5,727.04
Deferred Income:				
Wherry Memorial Lecture Fund			$ 6,372.05	
Subcommittee on Noise in Industry:				
Receipts		$ 37,620.37		
Disbursements		37,620.37		
N. I. H. Grants in Aid:				
3-B-9023 (C1) Uveitis				
Receipts	$ 48,056.00			
Disbursements	11,165.93	$ 36,890.07		
B-2359 (C2) Uveitis				
Receipts	$ 21,528.00			
Disbursements	7,481.32	14,046.68	50,936.75	
B-2375 (C2) Hearing				
Receipts		$ 67,200.00		
Disbursements		6,476.65	60,723.35	
Total Undisbursed Funds from Special Contributions				118,032.15
Net Worth:				
Surplus—January 1, 1959			$492,693.71	
Excess income over expenses			55,278.53	
Total Net Worth				547,972.24
TOTAL LIABILITIES AND NET WORTH				$671,731.43

Dr. Daniel Snydacker moved that the report of the Treasurer be accepted as read. Dr. Kenneth Roper seconded the motion, which carried.

III

The report of the Editor of the TRANSACTIONS was read by Dr. Benedict, Editor-in-Chief, as follows:

During the year just past, an average of 8,441 copies of the TRANSACTIONS were printed bimonthly. Of these, 925 were set aside for bound volumes, and an average of 7,459 mailed, an increase in circulation of 113 over last year. The following categories are represented.

Fellows	6,559
Candidates	103
Subscribers	495
Libraries	113
Exchange and Miscellaneous	73
Advertisers and Agents	61
Complimentary	45
Single copies	57

Eight hundred and eighty-three orders for the 1959 bound volume have been received to date.

The *revenue* from the TRANSACTIONS for the period from September 1, 1958, through August 31, 1959, was as follows:

Subscriptions:	
Members	$42,245.00
Candidates	1,995.00
Nonmembers	5,229.50

Bound Volumes	4,204.00
Single Issues	142.50
American Orthoptic Journal	258.00
Advertising	27,842.33
Cuts and Engraving	92.20
Reprints	1,582.21
Total Revenue	$83,590.74

The *expenditures* for the TRANSACTIONS for the period from September 1, 1958, through August 31, 1959, were as follows:

Bimonthly Issues	$43,044.30
Bound Volumes	1,928.96
Cash Discount Allowed	472.03
Paper Stock and Envelopes	12,559.60
Cuts and Engraving	2,658.50
Freight and Express	73.36
General Expense	84.50
Postage	1,680.47
Reprints	2,322.86
Salaries	14,479.87
Social Security Tax	322.03
Total Expenditures	79,626.48
Revenue over Expenditures	$ 3,964.26

The past six issues have averaged 190 pages per issue, including news notes, directory of societies, committee reports, positions available, and miscellaneous notices. The Directory of Ophthalmologic and Otolaryngologic Societies is printed twice a year in the May-June and the September-October issues.

The average number of pages of paid advertising was 32.166, representing 37 advertisers.

Two new manuals have been published during the past year: Allergy in Otolaryngology by French K. Hansel, M.D., and Jack R. Anderson, M.D.; Vocal Rehabilitation by Friedrich S. Brodnitz, M.D. A prize essay by Walter H. Fink, M.D., of Minneapolis on "Anatomical Study of the Orbital Fascia with Special Emphasis on its Relation to the Extrinsic Muscles" has been printed and will be sent to all members as a supplement to the September-October 1959, issue of TRANSACTIONS.

The ninth volume of the American Orthoptic Journal was published in September. The number printed was 2,650. Following the policy adopted two years ago, the Journal is sent only to those members of the Academy requesting it. It is mailed to all members of the Association of Orthoptic Technicians in good standing; two dollars of each member's dues are allocated for subscription.

Dr. Victor Byrnes moved that the report of the Editor be accepted as read. Dr. Lyle Sellers seconded the motion, which carried.

IV

The Necrologist's Report to the Council was presented by Dr. Benedict.

The following deaths were reported from October 1, 1958, to September 1, 1959:

George Carter Albright
Moacyr E. Alvaro
Donald Taylor Atkinson
Carl Conrad Beisbarth
Roy Spitler Binkley
Augustus J. Blickenstaff
Leo B. Bouvy
Robert James Bowman
Kenneth Charles Brandenburg
Everett Hayden Brooks
Howard Hampden Burnham
Louis Bernard Bushman
William James Creighton
Ralph Allison Davis
Edward John Donnelly
Horace Greeley Dwiggins
Norma B. Elles
Joseph Norman Elliott
Thomas Holmes Emmens
Merton A. Farnsworth
Ralph Bryan Fast
Ralph Albert Fenton
Roger Richard Flickinger
Ulrich Alfred Fritschi
Watson W. Gailey
Harold James Gibby
Harold Moore Griffith
Jacob Franklin Gsell
John Parkinson Harbert
William Howard Heine
Bert Eugene Hempstead
L. E. Hetrick
Clifton Earle High
Armenious Clements Hobbs, Jr.
George Esplin Hodge
Virgil Eugene Holcombe
John Gill Holland
Charles I. Johnson
George Thomas Jordan
Theodore Simon Kammerling
Edward Francis Lawlor

Henry B. Lemere
Alfred Lewy
Alfred Francis Luhr, Sr.
Andrew Louis MacMillan, Jr.
Oscar Milton Marchman
Louis Charles Menger
Alexander L. Moshinsky
John Llewellyn Myers
Lawrence James Nacey
Carl A. Noe
Dwight Chapman Orcutt
Norman Vern Peterson
William Wallace Reed
Paul William Renken
James Joseph Richardson
Michael Rosenbluth
Bernard Samuels
William Ewing Shahan
William G. Shemeley, Jr.
Morton Thelman Siegel
Harold Simons
Samuel Harry Skloff
James B. Stanford
Ernest E. Tippin
Manuel Uribe Troncoso
Oliver W. Turner
Charles Edward Walker
John Joseph Walsh
Henry Charles Weber
George Adrian Wiley
David Edmund Staunton Wishart

President Dunnington expressed regret at the death of these Fellows and instructed the Secretary to file the report.

V

OLD BUSINESS

1. The Council for 1959 approved the first reading of the following proposed changes in the Constitution. Action on these amendments is to be taken at the present meeting of the Academy.

Article III, Sections (a), (b), and (c) of the Constitution now read:

Article III

MEMBERS AND FELLOWS

The Academy shall consist of all members of the Society, such members to be designated as Active Fellows, Associate Fellows, and Honorary Fellows.

(a) Active Fellowship

A candidate for Active Fellowship shall be a member in good standing of his or her local and national medical society and shall be certified and approved by a national examining and certifying specialty Board acceptable to the Council.

(b) Inactive Fellows

Senior or Junior Fellows may by reason of physical infirmity or retirement from practice be classified by action of the Council as "Inactive." Inactive Fellows shall pay no dues, have no voting privileges, and shall not receive the TRANSACTIONS.

The application blank provided by the Academy shall be duly filled out by the candidate and filed, together with the current application fee, with the Executive Secretary-Treasurer. The application shall carry the endorsement of two Fellows of the Academy, at least one of whom shall be a resident of the candidate's home State or province (except where there are not members of the Society resident in the state or province).

If an applicant shall fail to qualify for Fellowship within three years after his application has been filed with the Executive Secretary-Treasurer, the application fee is forfeited—however, the applicant may renew his application for an additional three-year period by paying the current fee. Application fee is not returnable except by order of the Council after the candidate is refused election.

At least four weeks before the annual meeting a list of all applications filed with the Executive Secretary-Treasurer shall be sent to the Fellows with the official call of such meeting. Applications so listed shall be presented to the Council and after its approval shall be submitted to the Active Fellows of the Academy for voting at the next annual meeting. Other applications not included in said list shall not be submitted by the Council for vote of the Active Members of the Academy until after an annual meeting. A three-fourths affirmative vote of all Active Fellows present and voting shall constitute an election.

Any doctor of medicine, who has materially aided the progress of medicine in its relation to diseases of the eye, ear, nose or throat, may, on nomination of two Fellows and recommendation of the Council, and by a unanimous vote of the Fellows present at an annual meeting, be elected an Active Fellow.

(c) Associate Fellowship

Associate Fellows may be elected from those in fields allied to Ophthalmology and Otolaryngology who are not eligible to other fellowship classifications and who are proposed by two Active Fellows, approved by the Council, and have a three-fourths affirmative vote of all Fellows present at the Annual Meeting. Associate Fellows shall pay dues equal to one-half the regular dues for Junior Fellows. They shall not be eligible to vote or to hold office, but they shall receive the TRANSACTIONS.

The following amendments are proposed:

1. In Article III, first paragraph, insert the words *Life Fellows, Inactive Fellows* following the words *Active Fellows.*

2. In Article III, Section (a) Active Fellowship, add after the words *acceptable to the Council,* the sentences *Active Fellows shall automatically become Life Fellows after twenty-five consecutive years in good standing. Life Fellows shall enjoy all the privileges of Active Fellows.*

3. In Article III, Section (b) Inactive Fellows, paragraph one:

   (a) Delete the first three words *Senior or Junior* and substitute the word *Active.*

   (b) In the second sentence delete the words *pay no dues.*

   (c) At the end of the paragraph, after the word TRANSACTIONS, add the words *except by subscription.*

   (d) Title this paragraph (*c*) *Inactive Fellows* and place it immediately before (*d*) *Honorary Fellowship.*

4. In Article III, Section (b) Inactive Fellows, paragraph two:

   (a) Delete the words *at least one of whom shall be a resident of the candidate's home state or province (except where there are not members of this Society resident in the state or province).*

5. In Article III, Section (c) Associate Fellowship:

   (a) Delete the sentence *Associate Fellows shall pay dues equal to one-half the regular dues for Junior Fellows.*

   (b) Title this paragraph (*b*) *Associate Fellowship* and place it immediately after the paragraph titled (*a*) *Active Fellowship.*

The first paragraph and Sections (a), (b), and (c) of Article III of the Constitution of the American Academy of Ophthalmology and Otolaryngology, as amended, would then read:

Article III

MEMBERS AND FELLOWS

The Academy shall consist of all members of the Society, such members to be designated as Active Fellows, Life Fellows, Inactive Fellows, Associate Fellows, and Honorary Fellows.

(a) Active Fellowship

A candidate for Active Fellowship shall be a member in good standing of his or her local and national medical society and shall be certified and approved by a national examining and certifying specialty Board acceptable to the Council. Active Fellows shall automatically become Life Fellows after twenty-five consecutive years in good standing. Life Fellows shall enjoy all the privileges of Active Fellows.

(b) Associate Fellowship

Associate Fellows may be elected from those in fields allied to Ophthalmology and Otolaryngology who are not eligible to other fellowship classifications and who are proposed by two Active Fellows, approved by the Council, and have a three-fourths affirmative vote of all Fellows present at the Annual Meeting. They shall not be eligible to vote or to hold office, but they shall receive the TRANSACTIONS.

The application blank provided by the Academy shall be duly filled out by the candidate and filed, together with the current application fee, with the Executive Secretary-Treasurer. The application shall carry the endorsement of two Fellows of the Academy.

If an applicant shall fail to qualify for Fellowship within three years after his appli-

cation has been filed with the Executive Secretary-Treasurer, the application fee is forfeited—however, the applicant may renew his application for an additional three-year period by paying the current fee. Application fee is not returnable except by order of the Council after the candidate is refused election.

At least four weeks before the annual meeting a list of all applications filed with the Executive Secretary-Treasurer shall be sent to the Fellows with the official call of such meeting. Applications so listed shall be presented to the Council and after its approval, shall be submitted to the Active Fellows of the Academy for voting at the next annual meeting. Other applications not included in said list shall not be submitted by the Council for vote of the Active Members of the Academy until after an annual meeting. A three-fourths affirmative vote of all Active Fellows present and voting shall constitute an election.

Any doctor of medicine who has materially aided the progress of medicine in its relation to diseases of the eye, ear, nose or throat may on nomination by two Fellows and recommendation of the Council, and by a unanimous vote of the Fellows present at an annual meeting, be elected an Active Fellow.

(c) Inactive Fellows

Active Fellows may by reason of physical infirmity or retirement from practice be classified by action of the Council as "Inactive." Inactive Fellows shall have no voting privileges and shall not receive the TRANSACTIONS except by subscription.

Dr. McNally moved that the Council reaffirm their approval of the amendments to the Constitution proposed in 1958. The motion was seconded by Dr. Schall and carried.

VI

COMMUNICATIONS

1. The Academy office is in receipt of an official communication from the Council and Membership of the American Laryngological Association, the American Broncho-esophagological Association, and the American Laryngological, Rhinological and Otological Society, Inc., reaffirming their action requesting a change of date of the meeting of the American Academy of Ophthalmology and Otolaryngology.

After discussion, Dr. Schall moved that a committee be appointed by the President to confer with representatives of the above societies in regard to future meeting dates. The motion was seconded by Dr. McNally.

Dr. Gordon Hoople requested that the motion be amended to state that the committee meet with the Board of Regents of the American College of Surgeons rather than with representatives of the otolaryngological societies. Dr. Schall and Dr. McNally accepted the amendment, the motion was put to a vote, and carried.

2. Dr. Paul Holinger and Dr. LeRoy Schall have both stated in letters to the Executive Secretary-Treasurer that they would be in favor of the Academy broadening the scope of institutions in which a Fellowship in Pathology could be obtained. At the present time the Council has approved the granting of fellowships only in the Armed Forces Institute of Pathology. The consensus of the Council favored issuing fellowships on a broader basis provided the institutions concerned were carefully screened. On the direction of the President, the placement of fellowships will be a function of the Executive, Research and Finance Committee.

3. Mrs. Hobart C. Ramsey of the Deafness Research Foundation of New York wrote the Executive Secretary-Treasurer at the suggestion of Dr. Dean M. Lierle, requesting the approval of the Academy for the Foundation.

Although the members of the Council were sympathetic with the aims of the Foundation, official approval was not considered to be a proper function of the Academy Council. The request was tabled.

4. The Secretary General of the International Organization Against Trachoma, Jean Sedan, Marseille, France, has asked the Academy to designate a delegate to the International Organization, which will meet during the next International Congress of Ophthalmology in Delhi, India, December 3 to 7, 1962.

A motion was made and seconded that the President be empowered to name a delegate to attend the meeting of the International Organization Against Trachoma, such appointment to be made without financial obligation to the Academy. The motion carried.

5. Three hotels have invited the Academy to hold an annual convention under their respective roofs: The Habana Hilton, Havana,

Cuba; Fontainebleau, Miami Beach, Florida; and the Americana, Miami Beach Florida. The Miami Beach and the Atlantic City convention bureaus have also issued official invitations to hold an Academy convention in their respective cities.

The invitations were referred to the Executive, Research and Finance Committee.

6. The Joseph K. Dennis Insurance Co., Inc., has proposed two insurance plans for consideration of the Council: (1) a Proposed Plan of Group Life Insurance designed for employees of the members of the American Academy of Ophthalmology and Otolaryngology, and (2) a Loss of Time Plan designed especially for Employees of the American Academy of Ophthalmology and Otolaryngology.

The Council authorized the Executive Secretary-Treasurer to sign a contract with the Joseph K. Dennis Insurance Company, Inc., covering these two types of insurance coverage.

7. A communication from Dr. Chevalier L. Jackson, secretary of the Pan American Association of Oto-Rhino-Laryngology and Broncho-Esophagology, called the attention of the Academy Council to the Seventh Pan American Congress of Oto-Rhino-Laryngology and Broncho-Esophagology to be held at the Americana Hotel at Miami Beach, March 20-23, 1960, and suggested that "it would seem appropriate . . . if the Academy, having sponsored the founding of this organization in 1946, should see fit to make some financial contribution to the expenses of this Seventh Congress."

The matter was referred to the Executive, Research and Finance Committee.

VII

Report of the Executive, Research and Finance Committee—Dr. John H. Dunnington, Chairman.

1. The Committee recommends that the application fee for fellowship in the Academy continue to be $25.00; and that for the year 1960 the annual dues for Active Fellows shall be $25.00; for Associate Fellows, $12.50. The allotment from dues and from application fees for subscriptions to the TRANSACTIONS shall be continued at $7.00.

Dr. Benedict moved that the recommendations of the Committee be accepted. The motion was seconded by Dr. Irvine and carried.

2. The Committee recommends that four Fellows who have been delinquent in the payment of dues for a period of more than three years be dropped from the Academy roster.

Dr. Benedict moved that the recommendations of the Committee be accepted. The motion was seconded by Dr. Derlacki and carried.

3. The Committee recommends that inactive status be granted to the following Fellows:

James P. Aderhold, San Antonio, Texas
Robert S. Bolin, Elkhart, Ind.
Frederic E. Cressman, Hollywood, Calif.
Oscar Davis, Lancaster, Pa.
Ilona K. de Suto-Nagy, New Haven, Conn.
Thomas Reed Gagion, Pittston, Pa.
Colby Hall, Los Angeles, Calif.
Hallie Hartgraves (Sister Lucia), Kenosha, Wis.
Thomas Holt, Warrenton, N. C.
Elmer W. O'Brien, Webster, N. Y.
Jacob Ruchman, Brooklyn, N. Y.

Dr. Benedict moved that the recommendations of the Committee be accepted. The motion was seconded by Dr. Sellers and carried.

4. The Committee recommends that the request of Dr. Martin R. Steinberg for transfer from Junior Fellow to Associate Fellow be approved.

Dr. Benedict moved that the recommendation of the Committee be accepted. The motion was seconded by Dr. Ruedemann and carried.

5. The Committee recommends that the application of Dr. Stanley Lawrence Lane for Associate Fellowship be approved.

Dr. Benedict moved that the recommendation of the Committee be accepted. The motion was seconded by Dr. Snydacker and carried.

6. The Committee recommends the following appointments:

As Chairman of Standing and Joint Committees for the year 1960:

To the Committee on Audio-Visual Education, Dr. Dean M. Lierle

To the Committee on Implants and Implant Techniques, Dr. A. D. Ruedemann, Sr.

To the Committee on Ophthalmic Pathology, Dr. Michael J. Hogan

To the Committee on Otolaryngic Pathology, Dr. Paul H. Holinger

To the Committee on Reconstructive Plastic Surgery, Dr. John Marquis Converse and Dr. Wendell L. Hughes, Co-Chairmen

To the Committee on Research in Otolaryngology, Dr. Harold F. Schuknecht

To the Committee on Scientific Exhibit, Dr. Kenneth L. Roper and Dr. Eugene L. Derlacki, Co-Chairman

To the Committee on Standardization of Tonometers, Dr. Elmer J. Ballintine

To the Teachers' Sections, Dr. A. D. Ruedemann, Sr., and Dr. John A. Kirchner, Co-Chairman

To the Committee on Use of Diagnostic Procedures and Therapy in Uveitis, Dr. A. D. Ruedemann, Sr.

As Representative of the Academy to:

American Association for the Advancement of Science, Dr. M. Elliott Randolph.

American Board of Ophthalmology, Dr. Fred M. Wilson for a four-year term beginning January 1, 1960.

American Board of Otolaryngology, Dr. Francis E. LeJeune and Dr. George F. Reed.

American College of Surgeons Board of Governors, Dr. Edwin B. Dunphy for the term expiring in 1962, and Dr. Francis E. LeJeune for the term expiring in 1963.

American Committee on Optics and Visual Physiology, Dr. James E. Lebensohn for a three-year term beginning January 1, 1960.

American Orthoptic Council, Dr. Philip Knapp for a three-year term beginning January 1, 1960.

American Standards Association, Acoustical Standards Board, Dr. Edmund P. Fowler, Jr.

American Standards Association, Committee for Standardization of Ophthalmic Lenses, Dr. Carl J. Rudolph and Dr. Arthur C. Linksz.

International Organization Against Trachoma, Dr. Phillips Thygeson.

Joint Committee on Eye Banks, Dr. Alson E. Braley and Dr. John Harry King, Jr.

National Committee on Research in Ophthalmology and Blindness, Dr. Bernard Becker and Dr. A. Edward Maumenee.

National Congress of Parents and Teachers, Dr. Frank D. Costenbader.

National Society for Crippled Children and Adults, Inc., Dr. Dean M. Lierle.

As Interim Appointments to:

Meeting on Health Problems at the Department of Health, Education and Welfare in Washington, D. C., December 10, 1958, Dr. Victor A. Byrnes.

National Citizens Committee for the World Health Organization, Washington, D. C., May 7 to 9, 1959, Dr. Victor A. Byrnes.

Oxford Ophthalmological Congress, July 1 through 4, 1959, Dr. Derrick Vail.

Dr. Erling Hansen moved that the recommendations of the Committee be approved. The motion was seconded by Dr. Roper and carried.

7. The Committee recommends the nomination of Dr. William L. Benedict as Editor-in-Chief of the TRANSACTIONS.

A motion to approve the recommendation was made by Dr. Ruedemann, seconded by Dr. Irvine, and carried.

8. The Committee recommends that the next annual meeting of the Academy be held October 9 to 14, 1960, at the Palmer House, in Chicago.

A motion by Dr. Benedict to approve the recommendation was seconded by Dr. Ruedemann and carried.

9. The Committee recommends the following appropriations for the calendar year 1960:

To the Committee on Conservation of Hearing, a sum not to exceed $20,000; $7,500 of this to be earmarked for the Subcommittee on Noise to be used for educational purposes.

To the Committee on Ophthalmic Pathology, $5,000.

To the Committee on Research in Otolaryngology, $2,000 for awards.

To the Committee on Standardization of Tonometers, $3,400.

To the Committee on Use of Diagnostic Procedures and Therapy in Uveitis, $10,000.

To the American Committee on Optics and Visual Physiology, $200.

To the American Orthoptic Council, $200.

To the National Committee on Research in Ophthalmology and Blindness, $500.

To the International Federation of Ophthalmological Societies, $300 for dues for 1960.

To the National Society for Medical Research, $1,000.

To the salary of a consultant at the Armed Forces Institute of Pathology, $7,000.

To a fellowship in ocular pathology at the Armed Forces Institute of Pathology, $600 a month for a 12-month period.

(The Committee recommends that no contribution be made toward the expenses of the Seventh Pan American Association of Oto-Rhino-Laryngology and Broncho-Esophagology.)

Dr. Benedict moved that the recommendations of the Committee be approved. The motion was seconded by Dr. Glen Gibson and carried.

VIII

Report of the Activities Committee—Dr. William J. McNally, Chairman.

Reports of the following committees were reviewed and approved by the Committee:

Audio-Visual Education
Conservation of Hearing
Evaluation of the Nonsurgical Treatment of Strabismus
Implants and Implant Techniques
Ophthalmic Pathology
Otolaryngic Pathology
Research in Otolaryngology
Standardization of Tonometers
Surgery of the Head and Neck
Use of Diagnostic Procedures and Therapy in Uveitis

[The Committee on Use of Alpha-chymotrysin in Ophthalmology gave its report before the Scientific Session on Wednesday morning, October 14.]

The Committee has also reviewed and approved the reports of representatives of the Academy to the following organizations:

American Association for the Advancement of Science
American Board of Ophthalmology
American Board of Otolaryngology
American College of Surgeons, Board of Governors
American Committee on Optics and Visual Physiology
American Orthoptic Council
American Standards Association, Acoustical Standards Board
American Standards Association, Committee for Standardization of Ophthalmic Lenses
Joint Committee on Eye Banks
National Committee on Research in Ophthalmology and Blindness
National Congress of Parents and Teachers
National Society for Crippled Children and Adults, Inc.
National Citizens Committee for the World Health Organization
Meeting on Health Problems at the Department of Health, Education and Welfare

In the report of the Joint Committee on Eye Banks, the Committee wishes to call the attention of the Council to the following paragraph:

"Dr. Ruedemann made a motion that the Committee recommend the creation of an American Association of Affiliated Eye Banks. The motion was seconded and carried. Discussion included the facts that the purpose of the association would be to invite ethical eye banks to join in cooperative action, to be governed by a medical Code of Ethics to be recommended by the Joint Committee on Eye Banks. It was further recommended that this organization be officially established under the American Academy of Ophthalmology and Otolaryngology, with its headquarters in Rochester, Minnesota. Suggestions were made that after the Association is established, a meeting be held of all medical and lay directors of eye banks to discuss ethical medical procedures."

In the report on a meeting of the National Citizens Committee for the World Health Organization, the recommendation that the Academy develop its position on an International Health Year met with a favorable

response, and the Committee recommends it to the Council.

The following recommendations were also made:

"1. The American Academy of Ophthalmology and Otolaryngology should participate in International Health Programs involving ophthalmology and otolaryngology. If participation is the course selected, then the mechanism whereby its contribution could be made should be determined. Bringing up the matter before the Pan-American Ophthalmological Society and other international eye and ear, nose and throat societies might be considered.

"2. If the Academy is not currently a sustaining member of the National Citizens Committee for the World Health Organization, some consideration should be given to the desirability of becoming such a member."

It was further recommended that the following committees be discontinued: Committee on Evaluation of the Nonsurgical Treatment of Strabismus; Committee on Surgery of the Head and Neck; Committee on Use of Alpha-chymotrypsin in Ophthalmology.

Dr. McNally moved that the report and recommendations of the Committee be accepted. The motion was seconded by Dr. Derlacki and carried.

IX

Report of the Board of Councillors—Dr. William J. McNally, Chairman.

1. The Board of Councillors recommends that the 266 candidates who have fulfilled the requirements for membership be accepted for Fellowship in the Academy.

A number of incomplete applications for fellowship were reviewed and decisions deferred.

Dr. McNally moved that the recommendation of the Board be approved. The motion was seconded by Dr. Irvine and carried.

2. The Board of Councillors nominates the following officers for 1960:

President: Dr. Dean M. Lierle, Iowa City
President-Elect: Dr. Dohrmann K. Pischel, San Francisco
First Vice-President: Dr. Harold G. Scheie, Philadelphia
Second Vice-President: Dr. David R. Higbee, San Diego
Third Vice-President: Dr. James H. Allen, New Orleans
Councillor: Dr. Harry P. Schenck, Philadelphia
Executive Secretary-Treasurer: Dr. William L. Benedict, Rochester, Minnesota

Dr. McNally moved that the nominations of the Board be approved. The motion was seconded by Dr. Goodhill and carried.

X

NEW BUSINESS

1. The Executive Secretary-Treasurer, Dr. W. L. Benedict, offered the following resolution:

WHEREAS, the Educational Fund of the American Academy of Ophthalmology and Otolaryngology is now in excess of three hundred thousand dollars: and WHEREAS, the purposes of the fund are stated in an instrument entitled Educational Trust of the American Academy of Ophthalmology and Otolaryngology: and

WHEREAS, the custodian of the Academy Educational Fund is the First National Bank of Minneapolis, Minn., be it therefore RESOLVED

(a) That the Council of the American Academy of Ophthalmology and Otolaryngology recommend that the proposed Educational Trust Agreement be approved and the Executive Secretary-Treasurer authorized to sign the Agreement for the Academy.

(b) That the Executive Secretary-Treasurer transfer to the Trustee such funds as are now invested in stocks and bonds and held by the First National Bank as custodian.

Dr. Roper moved that the Council recommend approval of the proposed Educational Trust Agreement, as amended earlier, and that the Executive Secretary-Treasurer be authorized to sign the agreement for the Academy. The motion was seconded by Dr. Snydacker and carried.

Dr. Hansen moved that the Executive Secretary-Treasurer be empowered to transfer to the Trustee named in the Educational

Trust Agreement such funds as are now invested in stocks and bonds and held by the First National Bank of Minneapolis as custodian. The motion was seconded by Dr. McNally and carried.

2. Dr. Edley Jones, representing the Liaison Committee of the International Association of Secretaries of Ophthalmological and Otolaryngological Societies with the Academy, appeared before the Council to discuss the relationship between the two organizations. He said that the members of the Association were anxious to cooperate with the Academy and to consult with the Council regarding organizational matters. The Association is most anxious that the Academy continue its role as a sponsor.

It was agreed that the Academy would continue its sponsorship with the understanding that the Academy should be apprised of proposed nominations before the election of officers and at least be made aware of policies to be adopted before they are announced.

3. The question of registration fees for nonmembers and their relationship to dues and candidates' fees was discussed. It was felt that the registration fee should be $15.00, but that the $5.00 fee might be continued for those who were associated with members of the Academy and came with their sponsorship. It was also the consensus that residents should be exempt from paying a registration fee if a guest card had been provided by the head of the department in which they were studying, and that a fee should be collected if the head of the department failed to act.

Dr. Irvine moved that changes in the registration fee be considered in the light of these suggestions, and that the details of such a change be left to the discretion of the Executive Secretary-Treasurer. The motion was seconded by Dr. Sellers and carried.

4. President Dunnington named the following committee to confer with the Board of Regents of the American College of Surgeons in regard to future meeting dates: Dr. William L. Benedict, Dr. Edwin Dunphy, Dr. David Higbee and Dr. Victor Goodhill.

5. Permission was granted the Executive Secretary-Treasurer to discontinue the preparation of a mimeographed list of candidates for distribution at the Business Meeting, since the names of candidates are available to the members each year in the July-August issue of the TRANSACTIONS.

6. Dr. McNally made a motion that the plan for issuing Honor Point Award badges be continued. The motion was seconded by Dr. Irvine and carried.

7. Dr. Benedict nominated the following men for appointment to the secretarial offices of the Academy:

Secretary for Ophthalmology: Dr. Kenneth L. Roper

Secretary for Otolaryngology: Dr. Clair Kos

Secretary for Instruction in Ophthalmology: Dr. A. D. Ruedemann, Sr.

Secretary for Instruction in Otolaryngology and Maxillofacial Surgery: Dr. Eugene L. Derlacki

Secretary for Home Study Courses: Dr. Daniel Snydacker

Secretary for Public Relations: Dr. Glen Gibson

The nominations were seconded by Dr. Irvine and carried.

Since no further business was brought before the Council, the meeting adjourned sine die.

ANNUAL BUSINESS MEETING

Thursday, October 15, 1959, 5:30 P.M.

PRESIDENT DUNNINGTON: The business meeting of the Sixty-fourth Annual Session of the American Academy of Ophthalmology and Otolaryngology will come to order.

The first item on the agenda is the report of the Executive Secretary, Dr. William L. Benedict, which will be read by Dr. Erling W. Hansen owing to Dr. Benedict's illness and loss of voice.

DR. ERLING W. HANSEN: Mr. President and Members: The Secretary's report is condensed. Further detailed information is available in the files of the Academy.

The fellowship as of January 1, 1959, which is the beginning of our fiscal year:

Junior	5,676
Senior	372
Life	524
Honorary	30
Inactive	127
Associate	8

There are 266 candidates to be considered at this meeting who have been approved by the Council for Active Fellowship, and one candidate for Associate Fellowship. One request for transfer from Junior to Associate Fellowship has been approved.

Seventy-two deaths were reported since our last annual meeting.

There have been no resignations. Requests for Inactive Fellowship have been approved for 11 Fellows. Four Fellows have been dropped for nonpayment of dues for a period of more than three years.

Mr. President, I move the acceptance of this portion of the report.

The motion was seconded by Dr. Kenneth L. Roper and carried.

The next item on the agenda is the report of the Treasurer, which will also be read by Dr. Hansen.

DR. HANSEN: The certified accountant's audit of the affairs of the Academy as of December 31, 1958, was published in the July-August 1959 issue of the TRANSACTIONS. It is a rather lengthy report, and inasmuch as it has been published, I question whether you want to hear the report in full.

PRESIDENT DUNNINGTON: What is your pleasure?

A motion was made by Dr. Roper, seconded by Dr. James Milton Robb, that the reading of the report be omitted. The motion carried.

Next is the report of the Senior Member of the Council, which will be given by Dr. Hansen.

DR. HANSEN: The Senior Member of the Council is Dr. Furstenberg, who had to go home, and being the junior Senior Member of the Council, I will read the report.

Mr. President and Members of the Academy: The Council has received and approved the reports of the Executive Secretary-Treasurer, the Editor of the TRANSACTIONS, the Council Committees, and joint and standing committees. These reports will be published in the November-December 1959 issue of the TRANSACTIONS.

The Council recommends that the application fee for fellowship in the Academy shall remain at $25; in 1960 the annual dues for Active Fellows shall be $25; for Associate Fellows, $12.50.

Mr. President, I move the adoption of this recommendation.

The motion was seconded by Dr. Gordon Hoople and carried.

DR. HANSEN: The Council recommends the following appropriations for the year 1960:

To the Committee on Conservation of Hearing, a sum not to exceed $20,000; $7,500 of this to be earmarked for the Subcommittee on Noise, to be used for educational purposes.

To the Committee on Ophthalmic Pathology, $5,000.

To the Committee on Research in Otolaryngology, $2,000 for awards.

To the Committee on Standardization of Tonometers, $3,400.

To the Committee on Use of Diagnostic Procedures and Therapy in Uveitis, $10,000.

To the American Committee on Optics and Visual Physiology, $200.

To the American Orthoptic Council, $200.

To the National Committee on Research in Ophthalmology and Blindness, $500.

To the International Federation of Ophthalmological Societies, $300 for dues for 1960.

To the National Society for Medical Research, $1000.

To salary of a consultant at the Armed Forces Institute of Pathology, $7,000.

To a fellowship in ophthalmic pathology at the Armed Forces Institute of Pathology, $600 a month for a 12-month period.

Mr. President, I move the adoption of these recommendations.

The motion was seconded by Dr. Roper and carried.

DR. HANSEN: The Council recommends the following appointments as chairmen to standing and joint committees for the year 1960:

To the Committee on Audio-Visual Education, Dr. Dean M. Lierle.

To the Committee on Conservation of Hearing, Dr. Dean M. Lierle.

To the Committee on Implants and Implant Techniques, Dr. A. D. Ruedemann, Sr.

To the Committee on Ophthalmic Pathology, Dr. Michael J. Hogan.

To the Committee on Otolaryngic Pathology, Dr. Paul H. Holinger.

To the Committee on Reconstructive Plastic Surgery, Dr. John Marquis Converse and Dr. Wendell Hughes.

To the Committee on Research in Otolaryngology, Dr. Harold F. Schuknecht.

To the Committee on Scientific Exhibit, Dr. Kenneth L. Roper and Dr. Eugene Derlacki.

To the Committee on Standardization of Tonometers, Dr. Elmer J. Ballintine.

To the Teachers' Sections, Dr. A. D. Ruedemann, Sr., and Dr. John A. Kirchner.

To the Committee on Use of Diagnostic Procedures and Therapy in Uveitis, Dr. A. D. Ruedemann, Sr.

Mr. President, I move the adoption of these recommendations.

The motion was seconded by Dr. Hoople and carried.

DR. HANSEN: The Council further recommends that the Committee on Evaluation of the Nonsurgical Treatment of Strabismus, the Committee on Surgery of the Head and Neck, and the Committee on Use of Alpha-chymotrypsin in Ophthalmology be discontinued.

Mr. President, I move the adoption of these recommendations.

The motion was seconded by Dr. Eugene L. Derlacki and carried.

DR. HANSEN: The Council further recommends that the President appoint a committee to meet with the Board of Regents of the American College of Surgeons regarding the time and place of the annual meetings.

Mr. President, I move the adoption of this recommendation.

The motion was seconded by Dr. Hoople and carried.

DR. HANSEN: The Council recommends the following appointments as representatives of the Academy to:

American Association for the Advancement of Science, Dr. M. Elliott Randolph.

American Board of Ophthalmology, Dr. Fred Wilson for a 4-year term beginning January 1, 1960.

American Board of Otolaryngology, Dr. Francis LeJeune and Dr. George F. Reed.

American College of Surgeons, Board of Governors, Dr. Edwin Dunphy for the term expiring in 1962, and Dr. Francis LeJeune for the term expiring in 1963.

American Committee on Optics and Visual Physiology, Dr. James E. Lebensohn for a term of three years beginning January, 1960.

American Orthoptic Council, Dr. Philip Knapp for a term of three years beginning in January 1960.

American Standards Association, Acoustical Standards Board, Dr. Edmund P. Fowler, Jr.

American Standards Association, Committee for Standardization of Ophthalmic Lenses, Dr. Carl J. Rudolph and Dr. Arthur C. Linksz.

Joint Committee on Eye Banks, Dr. Alson E. Braley and Dr. John Harry King, Jr.

National Committee on Research in Ophthalmology and Blindness, Dr. Bernard Becker and Dr. A. Edward Maumenee.

National Congress of Parents and Teachers, Dr. Frank D. Costenbader.

National Society for Crippled Children and Adults, Inc., Dr. Dean M. Lierle.

Mr. President, I move the acceptance of these recommendations.

The motion was seconded by Dr. Ralph O. Rychener.

DR. LIERLE: Mr. President, I hope we get by with this. I don't believe that the Board of Governors of the College of Surgeons will accept just one man. They usually take the one who is recommended but they usually want three names. However, we might just as well see what happens and I just wanted to warn you about it.

PRESIDENT DUNNINGTON: All right, we will wait and see.

The President called for a vote and the motion carried.

DR. HANSEN: The Council recommends approval of an interim appointment of Dr. Victor A. Byrnes to attend a conference on health problems at the Department of Health, Education and Welfare in Washington, D. C., December 10, 1958; of Dr. Derrick Vail as a delegate from the Academy to the Oxford Ophthalmological Congress in July 1959; and of Dr. Victor A. Byrnes to the National Citizens Committee for the World Health Organization, Washington, D. C., May 7-9, 1959.

Mr. President, I move the approval of these interim appointments.

The motion was seconded by Dr. Hoople and carried.

DR. HANSEN: The Council has instructed the President to name a delegate from the Academy to a meeting of the International Organization Against Trachoma, which will take place during the next International Ophthalmological Congress in Delhi, December 3 to 7, 1962.

[The President has named Dr. Phillips Thygeson as delegate.]

The Council recommends the nomination of Dr. William L. Benedict as Editor-in-Chief of the TRANSACTIONS:

Mr. President, I move approval of this recommendation.

The motion was seconded by Dr. Rychener and carried.

DR. HANSEN: The Council nominates for associate fellowship, Dr. Stanley Lawrence Lane, of New York; it further recommends the transfer to associate fellowship of Dr. Martin Steinberg, a Junior Fellow of the Academy who is no longer actively engaged in the practice of his specialty.

The Council nominates for active fellowship the 266 candidates whose names were published in the July-August 1959 issue of the TRANSACTIONS and who have completed all the requirements for membership.

Mr. President, I move that we accept the nominations of the Council.

The motion was seconded by Dr. Rychener and carried.

NEWLY ELECTED FELLOWS OF THE ACADEMY

Aiello, John Samuel, 926 E. McDowell Rd., Phoenix, Ariz., OP

Ainslie, Robert Brown, 30 S. Henry St., Madison 3, Wis., ALR

Alba, Anthony, 199 Bay State Rd., Boston 15, Mass., OP

Apt, Leonard, Wills Eye Hospital, Philadelphia 30, Pa., OP

Arnold, Godfrey Edward, 6 E. 79th St., New York 21, N.Y., ALR

Askren, Edward Leroy, Jr., 340 Boulevard N. E., Atlanta 12, Ga., OP

Austin, David Fletcher, 700 N. Michigan Ave., Chicago 11, Ill., ALR

Baldone, Joseph Anthony, 211 S. Saratoga St., New Orleans 12, La., OP

Baldwin, William Grove, 601 Douglas St., Wenatchee, Wash., ALR

Ball, Donald Nelson, Professional Bldg., Princeton, W. Va., OALR

Balsis, Bernard A., 226 W. State St., Trenton 8, N. J., OP

Balyeat, Ray M., School of Aviation Medicine, Randolph AFB, Texas, OP

Barest, Herman David, 332 E. Main St., Mount Kisco, N. Y., OP

Barsky, David, 100 Oak St., Wyandotte, Mich., OP

Beaman, Thomas Carroll, San Juan Clinic, Farmington, N. M., OP

Beatrous, William Phillip, 4440 Magnolia St., New Orleans 15, La., ALR

Bechtel, Edward Jackson, 419 N. Newport Blvd., Newport Beach, Calif., OP

Beekhuis, Gerardus Jan, 4216 Bedford, Detroit 24, Mich., ALR

Benda, Thomas James, 1370 Dodge St., Dubuque, Iowa, ALR

Benjamin, Kenneth Wells, 1419 Spruce St., Philadelphia 2, Pa., OP

Biber, Jakub Jan, 36 W. Winter St., Delaware, Ohio, ALR

Bisland, Theodore, 3707 Gaston Ave., Dallas 10, Texas, OP

Blackmon, Lyndell W., 1420 Lady St., Columbia 1, S. C., OP

Blanchard, Arthur James, 3100 W. Central Ave., Toledo 6, Ohio, ALR

Blaydes, James Elliott, Jr., 107 Federal St., Bluefield, W. Va., OP

Bohcali, Ara, 508 Benine Rd., Westbury, N. Y., ALR

Boudett, Daniel William, 40 San Mateo Dr., San Mateo, Calif., ALR

Braufman, Harvey S., 111 Church St., Ferguson (St. Louis), Mo., OP

Breneman, Fairfax V., 810 Lamar Ave., Paris, Texas, ALR

Brock, Charles Lee, U. S. Naval Hospital, Philadelphia 45, Pa., OP

Bronstein, Melvin, 27 Ludlow St., Yonkers, N. Y., OP

Brooks, James Maffett, 670 N. Michigan Ave., Chicago 11, Ill., ALR

Brown, William Charles, Eye Service, U. S. Army Hospital, Fort Ord, Calif., OP

Budoff, Benjamin Hyman, 115 N. Main St., Freeport, N. Y., ALR

Bullis, Richard Omri, Jr., 430 Monterey Ave., Los Gatos, Calif., OP

Burrows, Herbert Leonard, 8215 Van Nuys Blvd., Panorama City, Calif., OP

Cabitt, Henry Leo, 520 Beacon St., Boston 15, Mass., OP

Calnan, Arthur Francis, 534 Beacon St., Boston 15, Mass., OP

Campbell, Charles John, 635 W. 165th St., New York 32, N. Y., OP

Cancilla, Michael Louis, 246 North St., Pittsfield, Mass., OP

Carroll, Michael E., 8000 S. Racine Ave., Chicago 20, Ill., OP

Carter, Vincent, Jr., 654 Madison Ave., New York 21, N. Y., OP

Casey, Dennis Anderson, 4022 Canal St., New Orleans 19, La., ALR

Chalfin, J. Eugene, 36 Plaza St., Brooklyn 38, N. Y., OP

Chamberlain, George Earle, 414 Mayer Bldg., Portland 5, Ore., ALR

Cheesman, Glee Warner, 7 Union St., Hornell, N.Y,, ALR

Chong, Harry Shiua, 535 E. Romie Lane, Salinas, Calif., ALR

Christensen, Earl William, 1221 S. Broadway, Lexington, Ky., ALR

Christensen, Robert Eugene, Rm. 929, 727 W. Seventh St., Los Angeles 17, Calif., OP

Clark, Randall Lee, 5040 USAF Hospital, APO 942, Seattle, Wash., OP

Clark, Spurgeon William, Jr., 502 Isabella St., Waycross, Ga., OP

Clough, Howard Kenneth, Lankenau Medical Bldg., Philadelphia 31, Pa., OP

Cooper, Jack Crawford, 836th Tac Hospital, Langley AFB, Va., OP

Cosgrove, James Francis, 390 Main St., Worchester 8, Mass., OP

Crampton, Henry Jerome, 125 Amesbury St., Lawrence, Mass., OP

Crisman, Homer Ronald, 208 Medical Dental Center, Missoula, Mont., OP

Cutler, William Miller, 648 N. Woodward, Birmingham, Mich., OP

Dabezies, Oliver Hippolyte, Walter Reed Army Hospital, Washington 12, D. C., OP

Dennis, Robert P., 1002 Gore Blvd., Lawton, Okla., OP

DeNote, Anthony Paul, 12700 W. Dixie Highway, North Miami 61, Fla., OP

Dersh, Jerome, 814th Medical Group, Westover AFB, Mass., OP

Dias, John Felisberto, Jr., 227 Union St New Bedford, Mass., OALR

Does, Charles Wordsworth, 195 Thayer St., Providence 6, R. I., OP

Dong, Emma O., 535 E. Romie Lane, Salinas, Calif., OP

Donnelly, Joseph Cornelius, 7955 Castor Ave., Philadelphia 15, Pa., ALR

Doull, Arthur Ernest, 324 Spring Garden Rd., Halifax, N. S., Canada, OALR

Dowling, Joseph Leo, Jr., 207 Waterman St., Providence 6, R. I., OP

Doyle, Samuel Chamberlain, Hitchcock Clinic, Hanover, N. H., ALR

Dubroff, Seymour, 1737 H St. N. W., Washington 6, D. C., OP

Duggan, William Thomas, 2175 Hayes St., San Francisco 17, Calif., ALR

Dunn, Shepard Nash, 1718 Hampton St., Columbia, S. C., OP

Eastwood, Herbert Kendrick, Jr., Major (MC), 7373rd USAF Hospital, APO 10, New York, N. Y., ALR

Eliasoph, Ira Ingram, 35 E. 85th St., New York 28, N. Y., OP

Ellsworth, Robert Malcolm, 635 W. 165th St., New York 32, N. Y., OP

Engler, Carl H., 1930 Wilshire Blvd., Los Angeles 57, Calif., OP

Eubanks, William Lewis, 2929 Habersham Rd. N. W., Atlanta 5, Ga., OP

Eves, John Harold, Thayer Hospital, Waterville, Maine, ALR

Farish, Henry G., 13320 Riverside Dr., Sherman Oaks, Calif., OP

Farrell, George Raymond, 150 N. Center St., Reno, Nev., ALR

Faye, Eleanor Eaton, 121 E. 60th St., New York 22, N. Y., OP

Fernandez, Rafael O., 160 Ponce de Leon Ave., San Juan, Puerto Rico, OP

Fidler, Harry Earl, 103 Bayard St., New Brunswick, N. J., ALR

Fine, Ben Sion, A.F.I.P., Walter Reed Army Hospital Center, Washington 25, D. C., OP

Fornatto, Elio Joseph, 172 Schiller St., Elmhurst, Ill., ALR

Fossas, Rafael J., Miramar Ave., 706, Santurce, Puerto Rico, OP

Frame, Stuart Maurer, Jr., 216 Alexander St., Rochester 7, N. Y., ALR

Gans, Jack S., 1401 Reisterstown Rd., Baltimore 8, Md., OP

Genereux, Arthur George, 408 Canada Bldg., Saskatoon, Sask., Canada, OALR

Goldsmith, Robert Irwin, 527 E. Liberty, Ann Arbor, Mich., OP

Goldstein, Edward N., 940 Brooklyn Ave., Brooklyn 3, N. Y., ALR

Gorin, Edward Frederick, 841 W. San Bruno Ave., San Bruno, Calif., OP

Gozum, Ekrem, 123 Second Ave. S. E., Minot, N. D., ALR

Grandon, Eugene Leonard, University Hospitals, Iowa City, Iowa, OP

Griffey, Louis Ernest, 53 W. Central St., Natick, Mass., ALR

Gruber, Ellis, 35 Chestnut St., Rochester 4, N. Y., OP

Gyorkey, Joseph, 758 N. Ogden Ave., Chicago 22, Ill., ALR

Haddad, Maurice, 213 Wallace S. Bldg., Tampa 2, Fla., ALR

Halle, Jules, 75 St. Louis St., Quebec 4, Que., Canada, OALR

Hamilton, Harvey Seaman, Suite 260, 403 Sixth St., New Westminster, B. C., Canada, OP

Hanna, Homer Harold, Capt. MC, Valley Forge Army Hospital, Box 76, Phoenixville, Pa., ALR

Hannon, John Francis, Qtrs. 203-A, U. S. Naval Hospital, Portsmouth, Va., OP

Harper, William Henry, Billings Clinic, P. O. Box 2555, Billings, Mont., OP

Harris, Ronald Blythe, 711 S. Jefferson St., Roanoke 10, Va., OP

Harrison, Elizabeth Quarles, 363 Queens Ave., London, Ont., Canada, OP

Hauser, Paul John, 636 Church St., Evanston, Ill., OP

Hertzog, Francis Carl, Jr., 800 Pine Ave., Long Beach 13, Calif., OP

Heyner, Conrad S., 3424 Oakman Blvd., Detroit 4, Mich., OP

Himes, Ralph Francis, Jr., 340 Central Trust Bldg., Altoona, Pa., OP

Hinton, Golden Sanders, 207 Watauga Ave., Johnson City, Tenn., OP

Holland, John Joseph, 511 Bondi Bldg., Galesburg, Ill., OP

Holland, Monte Gene, 1430 Tulane Ave., New Orleans 12, La., OP

Holowin, Joseph S., 1350 W. Seventh St., San Pedro, Calif., OP

Ianacone, Samuel J., 32 N. Goodman St., Rochester 7, N. Y., OP

Iglesias, Robert Garcia, 442 W. Lafayette, Tampa 6, Fla., ALR

Jackson, Andrew Henry, Meharry Medical College, Nashville 8, Tenn., OP

Jampel, Robert S., 450 Clarkson Ave., Brooklyn 3, N. Y., OP

Johnson, Ernest Anderson, 100-103 Medical Dental Bldg., Calgary, Alta., Canada, OP

Joseph, Alfred Louis, 39 N. Ohio Ave., Columbus 3, Ohio, OP

Kanofsky, F. J., 1734 State St., Santa Barbara, Calif., OP

Kantor, Theodore J., 264 Genesee St., Utica 2, N. Y., ALR

Katz, Irving M., 84-32 Midland Pkwy, Jamaica Estates 32, N. Y., OP

Kaufman, Ira H., 75 S. Middle Neck Rd., Great Neck, N. Y., OP

Kemp, Gordon B., Geisinger Memorial Hospital, Danville, Pa., OP

Kennedy, John Joseph, 1356 Union St., Schenectady 8, N. Y., OP

Kleckner, James Franklin, 3731 Stocker St., Los Angeles 8, Calif., OP

Kleinhandler, William W., 927 Park Ave., New York 28, N. Y., OP

Klika, Raymond Riggs, 16360 Broadway, Maple Heights, Ohio, OP

Knisely, Samuel Weaver, 1410 N. Second St., Harrisburg, Pa., OP

Kossner, Herbert Karl, 2100 Kincaid Way, Sacramento 25, Calif., ALR

Kratz, Robert Collin, 2508 Auburn Ave., Cincinnati 19, Ohio, ALR

Kwapy, Clemens Ralph, 208 E. Wisconsin Ave., Milwaukee 2, Wis., ALR

Ladenheim, Jacob, 505 S. Oak Park Ave., Oak Park, Ill., OP

Lange, Rollo DuBois, 1 S. Pinckney St., Madison 3, Wis., ALR

Lansche, Richard Kindell, 11th Field Hospital, APO 178, New York, N. Y., OP

LaSala, Anthony Mark, 851 Bushwick Ave., Brooklyn 21, N. Y., ALR

Laws, Harold Wyatt, 1509 Sherbrooke West, Montreal, Que., Canada, OP

Leek, Joseph Hugh, 205 W. Second St., Duluth 2, Minn., ALR

LeJeune, Francis Ernest, Jr., Ochsner Clinic, New Orleans 15, La., ALR

Ley, Albert P., 640 S. Kingshighway, St. Louis 10, Mo., OP

Liao, Chung Kuo, 13000 S. Maple Ave., Blue Island, Ill., OP

Lim, Sigdian S., Kings County Hospital, Brooklyn 3, N. Y., ALR

Lodge, John Hayes, 7815 Old Georgetown Rd., Bethesda 14, Md., OP

Longfellow, Don Woodward, Armed Forces Institute of Pathology, Washington 25, D. C., OP

Lorenz, Elmer Wilford, 7600 Carroll Ave., Takoma Park, Md., ALR

Lubowitz, Richard M., The Benson East, Jenkintown, Pa., OP

MacRae, Donald MacKay, 324 Spring Garden Rd., Halifax, N. S., Canada, OALR

Maestre, Federico J., 1502 Ponce de Leon Ave., Santurce, Puerto Rico, OP

Magian, Victor deCourcey, Winnipeg Clinic, Winnipeg, Man., Canada, ALR

Malec, Henry William, 3600 Forbes, Pittsburgh 13, Pa., OP

Malkoff, Jack, 1005 Belmont Ave., Youngstown 4, Ohio, ALR

Malloy, David J., 9215 W. Center St., Milwaukee 10, Wis., OP

Mancall, Irwin Tuch, 750 Main St., Hartford 3, Conn., OP

Mandler, George, 913 Webster St., Chillicothe, Mo., ALR

Mangahas, Cayetano P., 1930 Chestnut St., Philadelphia 3, Pa., OP

Marshall, James R., Jr., 20160 Mack Ave., Grosse Pointe 36, Mich., OP

Maynard, Robert Ensign, 215 Fourth Pl., Renton, Wash., OP

Mays, Joseph Lamar, 1029 Candler Bldg., Atlanta 3, Ga., OP

McCoy, R. Hall, 1374 Sherbrooke St. West, Montreal 25, Que., Canada, ALR

McLean, Richard K., 119 N. Imperial, El Centro, Calif., OP

McNicholas, Patrick John, 288 Duckworth St., St. John's, Nfld., Canada, OP

McNichols, William Arthur, Jr., 101 First St., Dixon, Ill., OP

Meyers, Marina Prajmovsky, 13 Walnut Rd., Glen Cove, N. Y., OP

Michaile, Kenneth Isadore, 1930 Chestnut St., Philadelphia 3, Pa., OP

Milam, Daniel Franklin, Jr., 27 103rd Ave., Bellevue, Wash., OP

Mirabile, Thomas J., 59 Burnside Ave., East Hartford 8, Conn., OP

Montalvo, Andres, Professional Bldg., Santurce, Puerto Rico, OP

Moose, Ray M., 575 Fifth St., San Bernardino, Calif., ALR

Moraitis, Constantine Z., 4127 Brownsville Rd., Pittsburgh 27, Pa., OP

Nachod, Grace Rebecca, 5501 Greene St., Philadelphia 44, Pa., OP

Nito, Yuichi, University of Tennessee, Memphis, Tenn., ALR

Nousek, James Edward, Jr., 2020 E. 93rd St., Cleveland 6, Ohio, OP

Ocasio Cabanas, Kermell A., 353 De Diego Ave., Santurce, Puerto Rico, OP

O'Neil, Lloyd, 33 S. Island St., Aurora, Ill., ALR

O'Neill, James Flemister, 511 11th St. North, St. Petersburg, Fla., OP

Parsons, Hugh Earle, 442 W. Lafayette St., Tampa 6, Fla., OP

Parsons, Richard Clare, Grady Hospital, Atlanta 3, Ga., ALR

Pasek, Edward Antone, 1600 S. Western Ave., Sioux Falls, S. D., OP

Patchett, Orval Wilson, 712 N. Fourth St., Pasco, Wash., OALR

Pate, John Wilson, 55 E. North St., Madisonville, Ky., OP

Pearlman, Edwin, 910 Wainwright Bldg., Norfolk 10, Va., OP

Peretz, Walter Leon, 1224 Clinton Ave., Irvington, N. J., OP

Pernoud, Michael Frank, 634 N. Grand Ave., St. Louis 3, Mo., OP

Perreten, Frank Arnold, 209 Reynolds Bldg., Winston-Salem, N. C., OP

Perry, Judith V., 830 W. Eighth St., Hinsdale, Ill., OP

Phillips, Roland LaVerne, 403 Matthews Bldg., Owosso, Mich., OP

Pincus, Morris Herbert, 881 Washington Ave., Brooklyn 25, N. Y., OP

Pinsker, Oscar T., 701 E. 63rd St., Kansas City, Mo., ALR

Post, Jarvis Harold, 345 Vine St., Johnstown, Pa., OP

Quinn, James Henry, 804 Boston Bldg., Salt Lake City, Utah, OP

Raban, Reginald James, 227 S. Sixth St., Camden 3, N. J., OP

Rados, Walter T., 31 Lincoln Park, Newwark 2, N. J., OP

Radpour, Shokri, State University of New York, Brooklyn 3, N. Y., ALR

Raggio, Thomas P., Reymond Bldg., Baton Rouge, La., ALR

Ramer, Philip, 31 E. Bridge St., Berea, Ohio, OP

Rankin, Richard Brandon, Jr., Cabarrus Bank Bldg., Concord, N. C., OP

Razim, Edward Anton, 6804 Windsor Ave., Berwyn, Ill., ALR

Reichert, Clifford F., 132 Union Ave., Framingham, Mass., OP

Rhodes, David Henry, Jr., 7013 Jenkins Arcade, Pittsburgh 22, Pa., OP

Rice, Jacob, 114 Waltham St., Lexington 73, Mass., OP

Rice, Lee Edward, 2141 14th St., Boulder, Colo., OP

Rife, Charles Jacob, 716 N. Lime St., Lancaster, Pa., OP

Roberts, Shaler Sinclair, Jr., 416 N. Seminary St., Florence, Ala., OP

Robinson, Mendell, 206 Waterman St., Providence 6, R. I., ALR

Roe, Chester Thomas, Professional Bldg., 1221 E. State St., Rockford, Ill., OP

Rolfes, Harry Franklin, 148 First St. North, St. Petersburg 1, Fla., OP

Rowe, Fred Anderson, Jr., 340 Doctors Bldg., Nashville 3, Tenn., OP

Rup, Edmund Charles, 85 Jefferson St., Hartford 14, Conn., OP

Sabin, Frederick Chapman, 101 S. Front St., Marquette, Mich., OP

Sallee, William Thomas, USAF School of Aviation Medicine, Randolph AFB, Texas, OP

Salmon, Louis R., 1008 N. Main St., Bloomington, Ill., OP

Sandler, Robert, 818 Medical Arts Bldg., Baltimore 1, Md., OP

Schwade, Irwin, 250 W. 21st St., New York 11, N. Y., OP

Senita, George Robert, 198 Lincoln Ave., Pittsburgh 2, Pa., OP

Shekter, William B., 2425 Geary Blvd., San Francisco, Calif., OP

Shrader, Edward Charles, 1406 Heyburn Bldg., Louisville 2, Ky., OP

Silver, Abraham Gilbert, 30 E. 60th St., New York 22, N. Y., ALR

Simpson, Roger Allen, 319 E. Bloomington St., Iowa City, Iowa, ALR

Smith, Howard Willis, 442 Temple St., New Haven 10, Conn., ALR

Smith, Joseph Lawton, Wilmer Institute, Johns Hopkins Hospital, Baltimore 5, Md., OP

Smith, William Arthur, 3166 Maple Dr. N. E., Atlanta 5, Ga., OP

Smith, William Orlando, 327 Utica Square Medical Center, Tulsa, Okla., ALR

Sofranec, James Richard, 208 Mahoning Bank Bldg., Youngstown, Ohio, ALR

Sonnier, William, Jr., 1458 S. College Rd., Lafayette, La., OP

Sophocles, Aris M., 224 W. State St., Trenton 8, N. J., ALR

Sozanski, Julius C., 77 Broad St., Lynn, Mass., OP

Spencer, William Howard, 490 Post St., San Francisco 8, Calif., OP

Stein, Harold A., 329 Bloor St. West, Toronto 5, Ont., Canada, OP

Stevenson, Roger, U. S. Naval Hospital, Corpus Christi, Texas, OP

Stokes, James Arthur, Martin Army Hospital, Fort Benning, Ga., OP

Stone, Howard H., 416 N. Bedford Dr., Beverly Hills, Calif., OP

Straatsma, Bradley Ralph, U.C.L.A. Medical Center, Los Angeles 24, Calif., OP

Stratford, Thomas P., 200 Medical Arts Bldg., Richmond 19, Va., OP

Strow, Wallace F., 520 E. Allen, Springfield, Ill., OP

Summar, Marion Thomas, East Range Clinic, Virginia, Minn., ALR

Tatar, Joseph, 1893 Sheridan Rd., Highland Park, Ill., OP

Taylor, Irvin S., 62 S. Highland Ave., Ossining, N. Y., OP

Tenzel, Richard Ruvin, 210 E. 64th St., New York 21, N. Y., OP

Tetlie, James P., 628 Medical Arts Bldg., Duluth 2, Minn., OP

Thorn, James Isham, U. S. Naval Hospital, Philadelphia 45, Pa., OP

Ticho, Karl E., 4817 W. 83rd St., Oak Lawn, Ill., OP

Touma, Alfred, 735 S. Washington St., Royal Oak, Mich., OP

Trachtenberg, Lee Hersh, 112 Rimbach, Hammond, Ind., OP

Traganza, Robert W., 236 White Horse Pike, West Collingswood 6, N. J., OP

Trotter, Robert R., 243 Charles St., Boston 14, Mass., OP

Tucker, Gabriel Frederick, Jr., Johns Hopkins Hospital, Baltimore 5, Md., ALR

Turnbull, Don C., 501 Woodward Bldg., Birmingham 3, Ala., OP

Twichell, Gilbert A., USAF Hospital, Maxwell AFB, Montgomery, Ala., ALR

Valusek, Fred Anthony, U. S. Naval Hospital, Qtrs. F-21, Philadelphia 45, Pa., ALR

Veenis, Cornelius Y., 4627 Fifth Ave., Pittsburgh 13, Pa., OP

Vermes, Edmund, 625 Park Ave., New York 21, N. Y., ALR

Walthall, Joseph Emmett, III, 1673 W. Broadway, Anaheim, Calif., ALR

Watzke, Robert Coit, Dept. of Ophthalmology, University Hospitals, Iowa City, Iowa, OP

Welch, Robert Bond, Wilmer Institute, Johns Hopkins Hospital, Baltimore 5, Md., OP

Whitaker, Clay W., 10515 Carnegie Ave., Cleveland 6, Ohio, ALR

White, John James, 653 W. State St., Jackson 2, Miss., OP

Whitehead, David C., 1306 Colonial Ave., Norfolk 7, Va., OP

Whitfield, Stanley, Box 328, Presbyterian Hospital, New York 32, N. Y., ALR

Wiedman, Michael S., 9 Central St., Lowell, Mass., OP

Williams, James Arthur, 2628 El Camino Ave., Sacramento 21, Calif., ALR

Willoughby, William Allen, 974 Fisher Bldg., Detroit 2, Mich., OP

Yancey, William Albert, 233 A St., San Diego 1, Calif., OP

Yasuna, Jules M., 1020 Main St., Peekskill, N. Y., OP

Yatzkan, David N., 816 Ann St., Homestead, Pa., OP

Zamora, Pablo J., Tripler U. S. Army Hospital, APO 438, San Francisco, Calif., OP

Zavatsky, Albert Richard, 100 State St., Harrisburg, Pa., ALR

Zuckerman, Bernard D., 255 Bradley St., New Haven 10, Conn., OP

DR. HANSEN: The Council nominates for the following offices for the year 1960:

President: Dr. Dean M. Lierle, Iowa City

President-Elect: Dr. Dohrmann K. Pischel, San Francisco

First Vice-President: Dr. Harold G. Scheie, Philadelphia

Second Vice-President: Dr. David R. Higbee, San Diego

Third Vice-President: Dr. James H. Allen, New Orleans

Councillor (for a 4-year term): Dr. Harry P. Schenck, Philadelphia

Executive Secretary-Treasurer: Dr. William L. Benedict, Rochester, Minnesota

Secretary for Ophthalmology: Dr. Kenneth L. Roper, Chicago

Secretary for Otolaryngology: Dr. Clair Kos, Iowa City

Secretary for Instruction in Ophthalmology: Dr. A. D. Ruedemann, Sr., Detroit

Secretary for Instruction in Otolaryngology and Maxillofacial Surgery: Dr. Eugene L. Derlacki, Chicago

Secretary for Home Study Courses: Dr. Daniel Snydacker, Chicago

Secretary for Public Relations: Dr. Glen Gibson, Philadelphia

Mr. President, I move the adoption of these nominations.

PRESIDENT DUNNINGTON: Do I hear any other nominations? If not, what is your wish?

DR. FREDERICK CORDES: I move that the Secretary be instructed to cast the ballot for those nominated.

The motion was seconded by Dr. Rychener and carried.

DR. HANSEN: The Council recommends adoption of the following resolution:

WHEREAS, The Educational Fund of the American Academy of Ophthalmology and Otolaryngology is now in excess of three hundred thousand dollars; and

WHEREAS, The purposes of the fund are stated in an instrument entitled Educational Trust of the American Academy of Ophthalmology and Otolaryngology; and

WHEREAS, The custodian of the Academy Educational Fund is the First National Bank of Minneapolis, Minnesota; be it therefore

RESOLVED (a) That the proposed Educational Trust Agreement be approved and the Executive Secretary-Treasurer be authorized to sign the Agreement for the Academy; (b) That the Executive Secretary-Treasurer transfer to the Trustee such funds as are now invested in stock and bonds and held by the First National Bank as custodian.

Mr. President, I move the adoption of this resolution.

The motion was seconded by Dr. Roper and carried.

DR. HANSEN: The following proposed changes in the Constitution of the Academy were read at the Business Meeting in 1958 and have been published in the TRANSACTIONS; they have again been approved by the 1959 Council and are recommended for adoption:

(c) Associate Fellowship

1. In Article III, first paragraph, insert the words *Life Fellows, Inactive Fellows* following the words *Active Fellows.*

2. In Article III, Section (a) Active Fellowship, add after words *acceptable to the Council,* the sentences *Active Fellows shall automatically become Life Fellows after twenty-five consecutive years in good standing. Life Fellows shall enjoy all the privileges of Active Fellows.*

3. In Article III, Section (b) Inactive Fellows, paragraph one:
   (a) Delete the first three words *Senior or Junior* and substitute the word *Active.*
   (b) In the second sentence delete the words *pay no dues.*
   (c) At the end of the paragraph, after the word TRANSACTIONS, add the words *except by subscription.*

(d) Title this paragraph (*c*) *Inactive Fellows* and place it immediately before (*d*) *Honorary Fellowship.*

4. In Article III, Section (b) Inactive Fellows, paragraph two:

(a) Delete the words *at least one of whom shall be a resident of the candidate's home state or province* (*except where there are not members of this Society resident in the state or province*).

5. In Article III, Section (c) Associate Fellowship:

(a) Delete the sentence *Associate Fellows shall pay dues equal to one-half the regular dues for Junior Fellows.*

(b) Title this paragraph (*b*) *Associate Fellowship* and place it immediately after the paragraph titled (*a*) *Active Fellowship.*

The first paragraph and Sections (a), (b), and (c) of Article III of the Constitution of the American Academy of Ophthalmology and Otolaryngology, as amended, would then read:

Article III

MEMBERS AND FELLOWS

The Academy shall consist of all members of the Society, such members to be designated as Active Fellows, Life Fellows, Inactive Fellows, Associate Fellows, and Honorary Fellows.

(a) Active Fellowship

A candidate for Active Fellowship shall be a member in good standing of his or her local and national medical society and shall be certified and approved by a national examining and certifying specialty Board acceptable to the Council. Active Fellows shall automatically become Life Fellows after twenty-five consecutive years in good standing. Life Fellows shall enjoy all the privileges of Active Fellows.

(b) Associate Fellowship

Associate Fellows may be elected from those in fields allied to Ophthalmology and Otolaryngology who are not eligible to other fellowship classifications and who are proposed by two Active Fellows, approved by the Council, and have a three-fourths affirmative vote of all Fellows present at the Annual Meeting. They shall not be eligible to vote or to hold office, but they shall receive the TRANSACTIONS.

The application blank provided by the Academy shall be duly filled out by the candidate and filed, together with the current application fee, with the Executive Secretary-Treasurer. The application shall carry the endorsement of two Fellows of the Academy.

If an applicant shall fail to qualify for Fellowship within three years after his application has been filed with the Executive Secretary-Treasurer, the application fee is forfeited—however, the applicant may renew his application for an additional three-year period by paying the current fee. Application fee is not returnable except by order of the Council after the candidate is refused election.

At least four weeks before the annual meeting a list of all applications filed with the Executive Secretary-Treasurer shall be sent to the Fellows with the official call of such meeting. Applications so listed shall be presented to the Council and after its approval, shall be submitted to the Active Fellows of the Academy for voting at the next annual meeting. Other applications not included in said list shall not be submitted by the Council for vote of the Active Members of the Academy until after an annual meeting. A three-fourths affirmative vote of all Active Fellows present and voting shall constitute an election.

Any doctor of medicine who has materially aided the progress of medicine in its relation to diseases of the eye, ear, nose or throat may, on nomination of two Fellows and recommendation of the Council, and by a unanimous vote of the Fellows present at an annual meeting, be elected an Active Fellow.

(c) Inactive Fellows

Active Fellows may by reason of physical infirmity or retirement from practice be classified by action of the Council as "Inactive." Inactive Fellows shall have no voting privileges and shall not receive the TRANSACTIONS except by subscription.

Mr. President, I move the adoption of these changes in the Constitution.

The motion was seconded by Dr. Rychener and carried.

DR. HANSEN: The Council has designated the time and place of the next scientific session of the Academy as October 9 to 14, 1960, Palmer House, Chicago.

Mr. President, I move the acceptance of the report as a whole.

The motion was seconded by Dr. Roper and carried.

PRESIDENT DUNNINGTON: Is there any new business to come before the business meeting?

Hearing none, I will ask Dr. Gibson to escort the President-Elect to the Chair.

(The members arose and applauded as President-Elect Lierle was escorted to the rostrum.)

PRESIDENT-ELECT LIERLE: I simply want to express my appreciation for the great honor you have conferred upon me. I shall try to do the best I can with the help of all of you.

And I want to congratulate you, Mr. President, on the very successful meeting you have had. I think it has been one of the best we have ever had. (Applause)

PRESIDENT DUNNINGTON: I can only state that this has been the most pleasant assignment I have had in my entire career. I must confess that I looked forward to it with a little trepidation because I didn't know exactly how arduous the duties would be, but with the splendid help that we have had from every member of the official family, shall we call them, it has been, indeed, an easy job and one that has not taxed my strength or energy to any great extent. That is because of the very efficient way in which the Academy is organized. Of course, along with Dr. Benedict comes our real helper, Mrs. Ledgerwood, without whom I don't know what even he would do. Then we come to the secretaries of both sections and the secretaries of the Home Study Courses. Each and every one, without mentioning all of them by name, I want to thank for their wholehearted support and to say that I am confident that the future of this society will always be bright as long as it remains in such good hands and this efficient body continues to function in the manner it has done previously.

If there is no further business I will entertain a motion to adjourn.

(Upon motion made by Dr. Rychener, seconded and carried, the meeting adjourned at 5:50 o'clock.)

COMMITTEE REPORTS

Upon recommendation by the Activities Committee, the Council voted acceptance of the following reports of standing and joint committees:

REPORT OF THE COMMITTEE ON AUDIO-VISUAL EDUCATION

DEAN M. LIERLE, M.D., Chairman

The Committee on Audio-Visual Education has considered the review of motion picture films pertaining to sensory diseases and has sent to authors of papers descriptive literature on the production of slides. Prints of two motion pictures on removal of temporal bones, one by Edmund P. Fowler, Jr., and another by Harold F. Schuknecht, have been distributed through the home office. There are no films in production nor scheduled for production in 1959. To date the Academy has sold 21 prints of the film Embryology of the Ear, 22 albums of Embryology of the Ear prints, 72 prints of the film Embryology of the Eye, 46 filmstrips of Embryology of the Eye, 16 sets of cardboard-mounted slides on the eye, and 18 sets of glass-mounted slides on the eye.

REPORT OF COMMITTEE ON CONSERVATION OF HEARING

DEAN M. LIERLE, M.D., Chairman

The Committee on Conservation of Hearing met in the Palmer House, Chicago, on Sunday, December 7, 1958, at 9:00 a.m.

Present: Drs. Boies, Bordley, Canfield, Davis, Fowler, Fox, Glorig, Goodhill, House, Jordan, Juers, Kos, Lierle, Lindsay, McHugh, McLaurin, McNally, Nash, Schuknecht, Shambaugh, Simonton, Tonndorf, Carhart, Carter, Lawrence, Reger, Serio and Silverman.

The minutes of the last meeting, December 14, 1957, were approved as circulated.

A. Dr. Lierle reported there was sufficient money for the expenses of extra meetings of the Subcommittees. He recommended that, if needed, the Subcommittees meet at least a half day prior to the meeting of the General Committee.

B. The chairman reported that he had had many requests for information concerning what governmental agencies one should apply to for grants and how to make applications.

1. In discussing this problem it was recommended that people connected with the various governmental agencies be asked to attend the next meeting and talk to the group. It was suggested that Dr. Gordon Seger of the National Institutes of Health be invited to attend the next meeting to discuss the policies of N. I. H. concerning training and research grants and the methods of making application.

2. It was also recommended that Dr. Tonndorf write a paper for publication in the TRANSACTIONS of the American Academy of Ophthalmology and Otolaryngology on the availability of funds for the support of research in otolaryngology.

C. The chairman asked Dr. House to speak on the question of an affiliation of the Research Center and the University of Southern California.

Dr. House reported that about two years ago it became quite obvious that the present workers in the Research Center would obtain certain advantages if they had some University status. This concerns mainly the benefit of the faculty staff received from the University retirement plan. Some time ago administrative officers of the University of Southern California as well as the Medical School were contacted regarding the affiliation of the Los Angeles Foundation of Otology with the University. It was agreed that such an affiliation would be of benefit and profitable to all concerned, and Dr. House was authorized to pursue the matter further. Through this connection the Research Center of the Subcommittee on Noise would be a research arm of the Los Angeles Foundation of Otology. This plan would in no way affect the present relationship with the Subcommittee on Noise and the American Academy of Ophthalmology and Otolaryngology. Dr. House asked that the Subcommittee on

Noise be empowered to proceed with the affiliation of the Research Center with the University of Southern California.

Dr. Davis made a motion that Dr. House be authorized to proceed with the above plan. This was seconded by Dr. Bordley. Carried.

D. The chairman said that two exhibits had been presented by the Subcommittee during the past year and suggested that Dr. Schuknecht and Dr. Simonton give reports.

Dr. Schuknecht stated that the Subcommittee on Research sponsored an exhibit at the October 1958 meeting of the Academy which he and Dr. Lindsay had prepared on the technique of removing temporal bones at autopsy. This exhibit, according to reports, proved to be a worthwhile venture. Unfortunately it was destroyed in the Palmer House fire, but Dr. Benedict of the Academy indicated that the cost to the Academy will be covered by insurance. The Subcommittee has under consideration the repetition of such an exhibit in a year or two because of the importance of the technique to the resident teaching program in otology as well as for the program on temporal bone pathology initiated by the Subcommittee on Research. Dr. Schuknecht mentioned that the National Institutes of Health has recently taken an interest in this program.

It was recommended that the exhibit presented by Dr. Schuknecht and Dr. Lindsay be prepared again. Dr. Schuknecht stated that since the present exhibit was totally lost it would be better to wait at least two years before making a new exhibit.

Dr. Simonton reported that the exhibit for the American Medical Association was a little simpler than that prepared by Drs. Schuknecht and Lindsay and was more suited to the general practitioner. He stated that hardly anyone passed by the exhibit. The pediatricians were particularly interested in the problem of serous otitis media. It was considered worthwhile as expressed by the men who attended.

Dr. Glorig suggested that it might be worthwhile from the standpoint of collecting data, as well as educationally, to set up three or four testing booths at the time of the Academy meeting in Chicago to test the hearing of as many as practical of the men and women who attended the meeting during the time of the session. This would be possible in conjunction with the usual exhibit prepared by Dr. Simonton. The plan would be to use several booths and place them at various strategic locations in the exhibit area. Arrangements probably could be made to have students from Northwestern University to do the testing and the booths could operate during the entire time the exhibits were open. The expenses for the students could be paid from the budget of the Research Center. Arrangements could also be made to have copy of his audiogram given to each volunteer subject. He stated it would be of interest to know what hearing levels exist in a population such as a large group of physicians.

It was recommended that the usual exhibit prepared by Dr. Simonton be presented in conjunction with the project proposed by Dr. Glorig. It was also recommended that some advance publicity would be desirable and suggested that the TRANSACTIONS publish some sort of an announcement prior to the Academy stating that these hearing tests would be conducted during the Academy sessions.

E. Dr. Davis was asked to speak on the proposed change in the normal hearing reference level.

Dr. Davis stated that only with the setting up of an international standard for the zero reference level for audiometers will communication concerning audiometric data be free and unconfused. Great Britain has recently adopted its own standard and several European countries have adopted the British standard tentatively, but all of them are in a mood to agree on a true international standard.

It is the consensus that the differences between the present American and British standards are not due to difference in human hearing on the two sides of the Atlantic Ocean. Part of the apparent difference is due to technical details of measurement and the basis of the remaining difference is now quite well understood, as will be explained later. Those who have been concerned with these problems are now well agreed on the desirability of an international standard and on the technical methods related to it that should be employed. No new surveys or further technical experiments are needed. Enough data are now available, but an important arbitrary decision must be made.

The problem is the difference between the present American Standard and the British Standard for audiometric zero which is of the order of 10 decibels. The difference is

due to different viewpoints as to what to call "normal." The present American Standard for audiometric zero was based on a U. S. Public Health Service population survey and has represented fairly well the expected average of "normal" performance in audiologic clinical tests. Actually the other countries have had the advantage of defining their audiometric zero later than we did (and not until techniques had already reached a high standard). The British Standard is based on the median value for the hearing of young adults with ears that were otologically normal. Tests were made under good acoustical conditions and with well-motivated subjects. This standard has the great advantage that it can be, and has been, reproduced quite closely in any country, including the United States and Soviet Russia.

A very practical fact is that there seems to be no real chance of persuading the British and European countries to accept the present American Standard. They apparently will cooperate in arriving at an international standard if it is based on the modern concept of "best normal hearing," which is about 10 decibels more rigorous than the present American Standard. It would not be expensive in dollars to change from the present American Standard to the proposed international standard. The cost would be almost entirely in the inconvenience in readjusting our thinking to a new set of numbers and making the necessary translation when comparing old data with new. Audiometers themselves would not be changed except for the numbers on the "hearing loss" dial. The present minus 10 would be called zero, the present zero would become 10, and so on. Present audiometers could be changed to the new standard and a new dial provided whenever the owner wished to send it in for recalibration. The actual physical range of the instruments would remain the same, and, with the exception of frequencies near 4000 cps, the minor adjustments at the various frequencies should be less than five decibels and probably well within the tolerance for accuracy of calibration that is given in the present American Standard for Audiometers. The new audiogram blanks would be the same as the present blanks except that the zero line would be at the top of the chart. The points actually plotted to represent the hearing of a given patient would fall in the same position on the paper as before, so that an audiogram taken under the old standard and one on the new standard could be compared directly by simply placing one chart over the other.

For closer comparisons, and for statistical purposes, a table showing the exact difference between the old standard and the new could be printed on each new audiogram blank and attached to each new audiometer and to each old one when it is recalibrated. For clinical judgments of individual cases the table would not be necessary. Then the round-number correction of 10 db would be quite accurate enough. Eventually, the various laws and rules would be rewritten in terms of the new standard, but in the meantime the additional step of translating the hearing loss for speech from the old standard to the new, or vice versa, would not make the calculations appreciably more complicated than they already are.

Confusion between the present American Standard and the desired International Standard can be minimized by the adoption of the new term "hearing level" instead of "hearing loss" to designate the value that is read on the intensity dial of an audiometer. New audiometers would measure a patient's "international hearing-threshold level" (in decibels) instead of his "hearing loss." Incidentally, the writing group of the American Standards Association has already approved, in its present draft of the new standard for audiometers, the substitution of the term "hearing-threshold level" for "hearing loss" as the designation of the intensity scale on the new instrument, regardless of what standard for zero is to be used.

It should be possible to get international agreement on exact fractional values of the new reference levels at various frequencies so chosen as to minimize or to avoid entirely any fractional values in the corrections needed to translate present American Standard data to the new standard. Almost certainly the correction for the average values at 500, 1000 and 2000 cps (used in medicolegal rules to estimate the hearing loss for speech) could be made an integral number, perhaps exactly 10 db. In general an effort could be made to adjust any fractional values in the direction of achieving a 10 db shift of reference level from the present American values. The only probable exception to this rule is at the frequencies near 4000 cps where the nearest round-number step would be 5 db instead of 10 db. It appears, from the best available data, that the present American Standard is relatively more severe at and near 4000 cps than at other frequencies and that we therefore have a "built-in" 4000 cycle notch of five decibels in all of our present audiograms.

In other words, in going to the new international standard there would be a 5 db reduction of all 4000 cycle notches. Apart from this, however, the shape of clinical audiograms would be unchanged.

As practical steps toward arriving at an international standard for the zero of audiometers, the Committee on Conservation of Hearing should inform the American Standards Association Writing Group S3-W35:

1. That it strongly advocates the adoption of an international standard for audiometric zero.

2. That in establishing an international zero, consideration should be given to recent American determinations of the sensitivity of normal hearing, notably the second study conducted at the Wisconsin State Fair under the auspices of the Subcommittee on Noise.

3. That the technical advice of the National Bureau of Standards and other qualified statistical advice should be obtained and followed in regard to combining these and perhaps other American data with the data on which the present British Standard is based.

4. That fractional decibel values at various frequencies should be arbitrarily rounded off or adjusted as necessary to obtain the following values:

   a. An integral decibel value for the difference between the present American Standard and the new International Standard values for the average hearing level at the three frequencies, 500, 1000 and 2000 cps.

   b. Integral values for the decibel differences between the present American Standard and the new Standard at as many individual frequencies as possible.

5. That the following set of values for the differences from the present American Standard embody the above objectives and are close enough to the mean of the British and the best American data to be considered seriously as guides to adjusting the international standard values.

CPS	DB	CPS	DB
125	10	1500	9
250	13	2000	8
500	12	3000	6
1000	10	4000	5
2000	8	6000	6
		8000	9

6. That the adoption of these arbitrary minor adjustments will considerably facilitate the adoption and practical use of the international standard by American otologists, industry, the Armed Forces, and legal bodies, such as Workmen's Compensation Commissions.

The Committee on Conservation of Hearing can immediately start a campaign of publicity and education regarding the desirability of an International Standard for Audiometry. For example, an official statement can be prepared for publication. A presentation of the problem can be made at the Sunday evening meeting next October. Invitations can be transmitted to other groups, such as the American Speech and Hearing Society, requesting them to cooperate in advocating and later in using the desired International Standard.

Dr. Glorig reported that he had been a delegate at the meeting of the International Standards Committee and urged the adoption of an international standard for audiometric zero. Dr. Fowler stated that his committee on audiometers had discussed this problem and recommended that it be acted upon at this time.

The committee proposed the following:

a. That the American Standards Association's recommendation that the International Standards reference zero level as measured in a given coupler (when it is agreed upon by the International Standards Association) be adopted for calibration of the American audiometers to be listed by the American Academy of Ophthalmology and Otolaryngology.

b. That for the inevitably difficult transition period every effort be made to make the changes to a new standard as easy as possible for everyone concerned.

c. That to facilitate the change, audiogram charts be recommended to show both the present American Standards and the International Standards.

F. Handbook on Audiometry—Dr. Glorig

Dr. Glorig reported that the chapters had been assigned for the handbook on audiometry and were nearly all complete. He expected to have copies ready to send to the members of the Committee within a couple of months. The book will contain about one hundred pages. He stated that he had asked the chair-

man, Dr. Lierle, to write a foreword for the handbook..

It was recommended that Dr. Lierle discuss the matter of publication with Dr. Benedict.

G. Public Health Aspect of Hearing Conservation—Dr. Glorig

Dr. Glorig reported that he had asked Drs. Lierle, Alfaro, Eagles and Johnson to attend a preplanning meeting with him on December 9, 1958, in Washington, D. C. The purpose of the meeting was to develop plans for a National Conference on the Public Health Aspects of Hearing. A general discussion of various facets of the hearing conservation problem were explored preliminary to making specific decisions concerning the conference. It is hoped that information obtained by the conference could be used in many ways—to inform people about the size and complexity of the problem, to arouse more people to engage in or support hearing conservation activities, and to point up the need for these services more clearly. Another meeting is to be held in May, and a report will be given at the next meeting of the Committee on Conservation of Hearing.

H. Short Courses in Audiometric Techniques —Dr. Carhart

Dr. Carhart reported that the problem of designating a curriculum for a short course in simple audiometric techniques was considered by the Committee on Clinical Standards in Hearing of the American Speech and Hearing Association. A subcommittee was, in turn, appointed to study the problem and to report back to the Committee on Clinical Standards in Hearing, which, in turn, presented the subcommittee's recommendations to the Executive Council of the American Speech and Hearing Association. The members of the Subcommittee for the A.S.H.A. were Courtney D. Osborn, Robert J. Briskey and Claude S. Hayes. The Executive Council of the A.S.H.A. reviewed the report of the Subcommittee at the Council meeting on November 18, 1958, and approved the general statement of scope and purposes which the Subcommittee had prepared. It was noted that this statement should be transmitted to the Committee on Conservation of Hearing with the recommendation that it be accepted. Moreover, the Council felt that the problem of outlining a specific curriculum remains extremely difficult for any small group to accomplish in such a manner that it will satisfy all the various committees and organizations interested in the problem of training audiometric technicians. The following is a statement on duties and training of audiometric technicians:

"The increasing use of audiometric data by the medical profession, schools and industry demonstrates the need for stating and defining the necessary minimum requirements for people performing certain tasks in audiometry.

"The committee agrees that it would be desirable for audiometric testing to be done by a person who meets the A.S.H.A. requirements for certification in hearing; however, it is the opinion of the committee that certain duties may be delegated to an audiometric technician. Audiometric technicians can conduct pure tone screening tests and establish air conduction threshold, but these test results should be reviewed and evaluated by an otologist or an audiologist. Medical supervision and evaluation is essential in situations where medical and medicolegal considerations exist.

"In addition, the committee felt that the following procedures should not be included in the duties of an audiometric technician:

1. Pure tone air conduction tests requiring masking
2. Pure tone bone conduction tests
3. Speech audiometry
4. EDR (GSR) audiometry
5. Tests for malingering and psychogenic deafness

"We also felt that administrative decisions and the procedures to be employed regarding such things as:

1. Screening levels
2. Frequencies to be tested
3. Techniques to be used
4. Criteria for failure
5. Interpretation of hearing tests
6. Follow-up recommendations should be made by the otologist or audiologist who is administering the test program."

With the duties of the audiometric technician defined and limited above, the following suggestions are made for minimum requirements for a short training course:

GENERAL RECOMMENDATIONS

1. *Supervised Clinical Practicum*

Practice testing is essential to all training programs. We recommend that a minimum

of ten supervised air conduction audiograms be administered by each trainee. Practice testing should include some individuals with impaired hearing.

2. *Length of Course*

There must be sufficient time to present the lecture material, allow the student to assimilate the material presented, complete supplementary reading, and fulfill clinical practicum requirements.

Dr. Shambaugh recommended that a copy of the statement on duties and training of audiometric technicians be sent to each member of the committee to study. This was seconded by Dr. Meyer Fox. Carried.

I. Report of the Committee on Research in Otolaryngology:

Dr. Schuknecht reported on the Council Committee on Research in Otolaryngology (formerly Ad Hoc Committee on Research in Otolaryngology). As reported by Dr. Tonndorf last year, this Committee had started as a group of twelve people trying to promote interest in otolaryngologic research. When the Committee was finally formed, it was felt that increasing its membership beyond the original twelve would make it unwieldy. The first scientific meeting was held on October 12, 1957, at Billings Hospital, Chicago, with seven papers, Dr. Tonndorf being in charge of the program and acting as chairman at that meeting. The second scientific meeting was held this year on October 11, 1958, again at Billings Hospital. Dr. Schuknecht was chairman and in charge of the program. In the meantime, the self-appointed Ad Hoc Committee had asked the Academy to appoint it as an official Academy Committee, its sole responsibility to be the promotion of scientific meetings for the furtherance of interest in research in otolaryngology. As during the past two meetings, contributions from residents in otolaryngology should be encouraged, interspersed with papers by mature investigators. The Academy (during October Council meetings) has accepted this proposal and formed the Council Committee on research in otolaryngology with Dr. Schuknecht as chairman. In addition to its own chosen task, the Council transferred the responsibility for the award program for scientific papers by residents in otolaryngology to the newly appointed committee. (This program had been initiated by the Subcommitee on Research of the Conservation of Hearing Committee.) Dr. Schuknecht had, with approval of the present members of the committee, made the following requests:

1. That the award program for 1958 be carried through by the Research Subcommittee;
2. That in the future the program for the scientific meetings be printed in advance in the Academy TRANSACTIONS;
3. That the Council select a new chairman every two years. Dr. Schuknecht further reported that he would appoint three people to form a Subcommittee for reviewing the manuscripts submitted for the annual award. To assure continuity, one member would rotate off the Subcommittee each year, and the oldest member would act as chairman. For the Council Committee itself, a similar rotating system was proposed: two would rotate off each year so that each member would have a 6-year appointment. The chairman may appoint a special program chairman in charge of the scientific meeting.

IV. REPORT OF STANDING COMMITTEES

A. Committee on Audiometers—Dr. Fowler

Dr. Fowler reported that the Subcommittee on listing of audiometers had been active and the program outlined last year was well under way.

1. A number of audiometers have been obtained on the open market and shipped to referee laboratories for testing.

2. The first group, which are the only models so far submitted, will be listed shortly after January 1959.

The Subcommittee voted to recommend the following propositions:

1. That the first group of manufacturers, as soon as their products have been approved, should be permitted to advertise that their audiometers have been listed as conforming to the appropriate standards. This should stimulate those responsible manufacturers who have not yet asked to have their products tested to do so.

2. That after the 1959 American Academy of Ophthalmology and Otolaryngology meeting, exhibitors and manufacturers of a new

type of audiometer be permitted to exhibit an instrument *once* without a formal listing by the American Academy of Ophthalmology and Otolaryngology.

3. That since there is to be a change in audiogram charts, attempt again be made to obtain some uniformity in the use of various symbols for air and for bone conduction. The following suggestions were recommended by the Subcommittee on the basis of present most general usage:

a. If colors are used, red should be used for charting levels for the right ear.
b. An O should designate air conduction on the right, and either an × or a dot should be permitted for the left ear.
c. For bone conduction, the Subcommittee recommends using a bracket to the left of the frequency line for the right ear, thus: [/, while for the left ear, the bracket would be placed on the right, i.e. /]
d. Cluttering of the middle of the audiogram should be avoided; connecting bone conduction plottings with solid or dotted line should be discouraged.
e. Indication of the standard and symbols being used should always be available whenever audiograms, audiometric data or levels are presented, verbally or in writing.

Dr. Shambaugh made a motion that the report be accepted except for the recommendation on the symbols. He suggested that this be tabled. This was seconded by Dr. McLaurin.

B. Hearing in Adults—Dr. Boies

1. Dr. Boies reported that it had been the intention of the committee to send each member prior to the meeting a copy of the manual which the committee was preparing, but it was impossible for this plan to be executed. Four parts of the manual were passed out at the time of the meeting and the fifth part was to be mailed out. Dr. Boies reported that his committee had worked two days prior to the general meeting reviewing the manual. He suggested that each member review the parts and return them to him with any recommendations. He then would send the manual on to Dr. Benedict.

2. Dr. Boies stated that the committee was studying the problem of the medical aspect of hearing in regard to the acquisition of drivers' licenses and the operation of automotive vehicles. He reported that the committee had made three classifications: drivers of private vehicles, drivers of commercial vehicles, and drivers of passenger vehicles. The members of the committee were of the opinion that a license to drive a commercial vehicle should not be issued to any person with a complete loss in one ear and 30 db in the other. Also, they felt that a license should not be issued to drive a passenger vehicle if the applicant had a hearing loss ranging below 30 db in both ears. No restrictions were made in regard to drivers of private vehicles. This problem was discussed and it was suggested that the committee do more research on it with a recommendation to report back at the next meeting.

3. The committee reported that they had reviewed the Syllabus on Audiology by Dr. Fitz-Hugh. In discussing the manuscript it was felt that since this was not a product of the Committee itself, the Committee was not in a position to recommend the manual for publication.

4. Dr. Boies reported that Dr. Shambaugh had recently written a book on oto-surgery entitled *Surgery of the Ear* which would be published shortly by W. B. Saunders Company. It was suggested that the committee prepare a modern nomenclature for deafness and hearing impairment (what is meant by nerve deafness, tympanic deafness, etc.)

The Subcommittee agreed to undertake this project.

C. Hearing in Children—Dr. Jordan

1. Dr. Jordan reported that an attempt is being made to use information on illnesses and other incidents in the lives of children which may have predictive value in indicating danger of hearing impairment. It is the opinion of medical authorities that chronic otitis media with effusion has shown a marked increase in incidence and that in many cases it is unrecognized or inadequately treated. A deterrent to the prompt recognition of chronic otitis media with effusion may be the fact that the most common symptom at present is not pain, but hearing loss. Frequently these cases are found when pupils fail to pass a screening test of hearing in a school program. A study is being conducted on a present population of approximately 4000 children from 3 to 15 years of age. This group will be enlarged as the study progresses through the 3-to-4-year period for which it is planned. The Subcommittee is also concerned with the study of young children which is being conducted at the Johns Hopkins University.

2. Dr. Bordley reported that tests were being run on the newborn child, at the age of three weeks, and on up to six months. Correlated studies were being made of the bone, tissue, chemistry, etc. So far, tremendous variation has been found in the responses in the very early age group and more in the six months' group. Whenever possible a study is made of the mother as soon as pregnancy is noted.

3. Dr. Jordan reported that he had first learned of the survey of hearing testing programs being conducted by the Committee for Hearing Conservation of the School Health Section of the American Public Health Association and the American School Health Association in September 1957. Dr. Adele Brown of Oswego, New York, had been carrying out the details of the survey. She requested that financial assistance be given by the Subcommittee on Hearing in Children to provide the needed services. The specific aim was to conduct a comprehensive national survey of conservation of hearing programs for school-age children, including information regarding methods for identification, referral, education and therapy for children with impaired hearing within the public schools. The committee had discussed the survey and felt that they could not spend funds obtained in the grant from the National Institutes of Health, as it was believed that it did not have a firm basis to support conclusions relating to the problem of hearing conservation on a national level.

In discussing the above project the general opinion was that the Committee on Conservation of Hearing could not support it. However, it was indicated that the objectives were commendable.

Dr. Davis made a motion that the report be approved. This was seconded by Dr. Lawrence.

D. Research Committee—Dr. McNally

The Subcommittee recommended to the Committee on Conservation of Hearing that the Academy should assume the cost of the copies of Dr. Schuknecht's films to be supplied to the Academy office for general circulation. The availability of the film was advertised in a footnote in the Brochure on the Technique of Temporal Bone Removal published in the Academy Bulletin, July-August 1958 by the Subcommittee on Research of the American Academy of Ophthalmology and Otolaryngology.

1. The Subcommittee asked Drs. Lindsay and Schuknecht to revise the Brochure on Temporal Bone Removal because several important changes and improvements in technique had been recommended. To reduce the cost to the Academy, Dr. Benedict suggested that the revision be published in one of the Journals restricted to Otolaryngology and a special arrangement made with the Journal by the Academy to buy the necessary reprints for general distribution.

2. At the meeting of the Academy Council in October it was agreed that the matter of awards to residents in research in otolaryngology would best be handled by some other general committee than the Committee on Conservation of Hearing. The Council approved as the award committee in otolaryngology the two year old "Committee on Research in Otolaryngology" with Dr. Harold Schuknecht as the chairman. The Council authorized an amount of $5,000 for the award. The new committee had a meeting in October and directed its chairman, Dr. Schuknecht, to ask the Subcommittee on Research of the Committee on Conservation of Hearing to continue its study and assessments of the manuscripts already submitted; furthermore to ask it to make recommendations as to the policy to be followed in judging research reports submitted for consideration for awards. The Subcommittee on Research recommended that research reports should be considered under two broad classifications viz; basic research and clinical research.

a. That in each classification there may be up three awards amounting to $500.00 each.
b. That the awards committee recommend for special mention an outstanding contribution.
c. That each award winner be invited to attend the next meeting of the Academy and the scientific meeting of the Committee on Otolaryngological Research and that at the general session of the Academy he be presented with a certificate suitably worded and a check for $500.00.
d. That the award committee recommend to the program committee of the Academy any award winning presentation which in their judgment would be a contribution to that program.

3. The Subcommittee reviewed 8 papers submitted, and judged worthy of an award, one clinical and three basic science presentations.

Dr. Shambaugh made a motion that the above recommendations be accepted. Seconded by Dr. Fox. Accepted.

Dr. Schuknecht had asked to be relieved as secretary of the Subcommittee on Research since he had taken on the chairmanship of the new Academy Committee on Research in Otolaryngology. Dr. Merle Lawrence kindly consented to act as the secretary of the Subcommittee on Research.

Dr. Shambaugh presented a manuscript which he is preparing for publication on the dangers of dihydrostreptomycin in antibiotic combinations in common use. The Subcommittee considered this to be an important matter and recommended to the Committee on Conservation of Hearing that this article be published in the Journal of the A.M.A. and that it should carry a footnote indicating that it has the imprimatur of this committee.

Dr. Schuknecht made a motion that the above report be approved. Seconded by Dr. Fox. Carried.

E. Noise Committee

1. Dr. House reported that he would be willing to offer a one-year fellowship to a qualified resident in otolaryngology who might be recommended to him by an appointed Committee. The resident would remain with him for one year and would receive a salary equivalent to that received by a resident. This could be supplemented, if necessary, according to his needs. He would be required to remain for a period of one year, following which he would return to his locality pre-dedicated to teach otology to the residents in that community. It was his understanding that the Board would agree to accept this one-year fellowship as one year of his residency training program.

Dr. Schuknecht advised making the training adequate during the residency period so that an individual would be able to do otology when he completed his training.

2. Dr. Glorig reported that there was an increased interest in noise-induced hearing loss as an occupational disease and that many lectures had been given by the Subcommittee. The demand for the films had increased and at present ten copies of the film on the audiometer, which he had shown at the last meeting, were available. The Committee is working on another film entitled "Ear Protection in Noise," which should be finished by February. Approximately ten papers have been published in various journals during the past year. Several conferences were held during the past year. One sponsored jointly by the N.I.H., Research Center and the Subcommittee on Noise was held in Los Angeles in February. The purpose was to discuss methods of determining handicap due to hearing loss and to assess the role of existing methods of hearing measurement in such a determination. Approximately twenty-two persons attended, including men and women representing the fields of acoustics, bio-communications, linguistics, otology, physics, psychoacoustics, psychology and speech. The following conclusions and recommendations were made by the Conference:

I. Although there was no general agreement about how to define or assess handicap due to hearing loss, the overwhelming majority of the conferees agreed that from a practical point of view an adequate assessment of handicap could be made from pure tone measurements. It was agreed by majority vote of 10 to 6 that (a) if the ability to hear and repeat sentences correctly in a quiet environment is accepted as currently the best representation of hearing for everyday speech and (b) if the measures used to calculate hearing loss for this everyday speech are to be weighted equally, then: an average of the hearing level in decibels at the three frequencies 500, 1000, and 2000 cps in an acceptable interim method for determining hearing loss for everyday speech and as an estimate of handicap. The minority voted to recommend the use of the average of hearing levels at 500, 1000, 2000, and 3000 cps to determine hearing loss for everyday speech. The chair and three conferees abstained from voting.

II. Being incompletely satisfied with the foregoing methods, the conference members unanimously recommended that research, such as investigation of the effects of different talkers, of various types of hearing loss, of variations in environmental noises, of various types of stimuli both at threshold and at suprathreshold levels, etc., be undertaken to discover the factors which should be employed in a more valid predictive test of the ability to receive everyday speech.

III. It was unanimously accepted that the principle of the high and low fence* be incorporated in the design of any

method for determining handicap due to hearing loss.

3. Dr. Glorig also reported that the Subcommittee on Noise had prepared a statement of principles as a guide for establishing scales for the assessment of handicap due to hearing impairment.

Dr. Jordan moved that the report of the Subcommittee on Noise be accepted. Seconded by Dr. Kos. Carried.

F. Joint Statement of Liaison Committee on Conservation of Hearing and the American Speech and Hearing Association.

1. Dr. Carhart reported that the two committees agreed that otology and clinical audiology have distinctive yet related tasks. These tasks may be described as follows:

*The principle of the high and low fence is essentially the principle that the range of handicap is smaller than the range of auditory sensitivity measured by pure tones. The low fence is the point on the audiometric hearing level scale at which handicap begins and the high fence is the point on the audiometric hearing level scale at which handicap is total. Audiometric zero, which is presumably the average normal hearing threshold level, is not an acceptable low fence because it is not the point at which handicap begins. The low fence is definitely higher than audiometric zero. Handicap is total at hearing levels lower than the maximum output of a standard audiometer; therefore, the high fence is necessarily lower than the maximum hearing level.

a. Otology has basic responsibility for the biological function of hearing. It alone rightfully undertakes the work of diagnosing diseases of the ear, of specifying the causation of hearing impairment, and of treating pathologies of the auditory mechanism!

b. Clinical audiology deals with hearing as a foundation to the learning and the utilizing of language skills. The emphasis is upon increasing the ability of handicapped individuals to cope with the communicational demands of everyday life.

c. The two fields share responsibility for jointly planning the proper sequence in management of the individual patient. Information on the patient should be exchanged freely. Moreover, decisions regarding otological management of the patient should always preceed decisions on audiological management, since maximal social efficiency can be achieved only after biological function has been restored as fully as possible. In view of the many ways in which audiological services are being made available, it is probably unwise to specify any particular organizational or administrative pattern as the only proper one. The contemporary situation is furnishing a trial of the effectiveness of the various patterns. We may expect the most desirable organizational practices to evolve, if only we would avoid premature opinions and encourage sympathetic insight among all those who have a part in the development and the presentation of programs in clinical audiology.

Motion made by Dr. Meyer that the statement of Orientation submitted be approved. Seconded by Dr. Fox. Carried.

Dr. Davis requested permission to use the statement of principles for establishing scales for the assessment of handicap due to hearing impairment and also the liaison statement regarding otology and audiology.

Motion was made by Dr. Simonton that Dr. Davis be permitted to use the statements. This was seconded by Dr. McHugh. Carried.

V. NEW PROJECTS

1. Dr. Glorig reported that he had sent out a questionnaire regarding Schools for the Deaf in the United States and had compiled the results. It was recommended that each member be sent a copy of the results.

2. Dr. Bordley presented the following ideas of the National Institute of Neurological Diseases and Blindness in regard to postdoctoral training of audiologists.

The National Institute of Neurological Diseases and Blindness is interested in training individuals in those fields pertaining to neurological problems. Such training is on a postdoctoral level. There has recently been inquiry by groups to support such postdoctoral training in institutions with no medical connections.

It is the thinking of the N.I.N.D.B. that:

1. Postdoctoral training can be supported to bring individuals trained in techniques of hearing and speech to the point that they may think along medically oriented lines.

2. That such a course of postdoctoral training should take place within a medical environment.

3. It is the feeling of the Committee on Training Grants, that such postdoctoral

training should include the following disciplines:

A. Physics
B. Electronics
C. Anatomy
D. Neuroanatomy
E. Neurology
F. Physiology
G. Pathology
H. Psychology
I. Biostatistics
J. Public Health Usage

It is, of course, recognized that many of these subjects will have been covered in the formal doctoral training.

4. Work within the Medical Institution should include the actual use of the patient material, which has already been medically evaluated.

5. The trainee should participate in those group clinics within the medical institutions in which they can make some contribution. Such clinics may include:

A. The Cleft Palate Clinic
B. The Clinic for Congenital Maldevelopment of Ears
C. Child Psychiatry Clinic
D. Neurology Clinic
E. Maternal and Child Health Clinic

6. The postdoctoral trainee should also participate in the teaching program of the medical students and the resident trainees.

7. The trainee should experience exposure to modern speech research techniques.

After some discussion, it was moved that the above remarks be incorporated in the minutes of the meeting, so that the members of the council could study them further.

The chairman thanked the members of the committees for all their good work and stated that a meeting would probably be held in another year at the same place, The Palmer House in Chicago.

REPORT OF THE SUBCOMMITTEE ON HEARING IN CHILDREN

Eldon L. Eagles, M.D.
Executive Director

The chief concern of the Subcommittee on Hearing in Children during the past year has been with studies from which it will obtain the techniques and procedures for its national program. The Subcommittee's principal activity has been with the Study of Hearing in Children being conducted cooperatively with the University of Pittsburgh's Graduate School of Public Health. The present status of the Pittsburgh Study will be described in some detail; other activities will be described briefly.

Pittsburgh Study of Hearing in Children

This study has proceeded steadily since examination of children began in May 1958. Considerable time and effort have been expended in retaining the cooperation of scores of persons involved in the conduct of the study. These include school personnel, Department of Education and Health officials, and the medical and allied professions. In addition, the support of parents of approximately 4,000 children in the study has been maintained and strengthened.

At the present time an analysis of data collected during the period ending June 30, 1959, is taking place. As of this date, 4,502 past medical histories had been completed; otolaryngological examinations numbered 4,840 and 6,984 hearing level determinations had been made. Most children in the Study have had at least two hearing level determinations. The collection of interim medical histories was begun in July 1959 on those children who had been in the study over six months. Thus, the study is assuming a longitudinal aspect.

Codes, coding instructions, transcription instructions, and specifications for tabulating cards have been developed for medical histories, otolaryngological examinations and hearing level determinations. All data collected up to June 30, 1959, was coded by the latter part of July and key-punched on tabulating cards by early August. In the future, data will be coded and key-punched each month as it is collected. The acquisition and training of an efficient staff to handle the large amount of data has been a major accomplishment.

Arrangements have been made with the Department of Biostatistics in the Graduate School of Public Health to key punch data on tabulating cards and to provide the services of personnel and data processing machines necessary to analyze the study data. The services available will include those provided by an electronic computor, without which it would be impossible to extract valuable information from the large amount of data being collected.

Before the examination of children in the study commenced, care was taken to provide an environment in which accurate hearing levels could be determined. This involved acoustic surveys of numerous sites in schools being considered to participate in the study, the choice and erection of proper audiometric test rooms, and establishing that the rooms provided adequate attenuation of ambient noise. Acoustic surveys repeated during the past year demonstrate that maximum allowable sound pressure levels within the test rooms which are necessary to test with accuracy at minus 25 decibels below audiometric zero are not being exceeded.

Early in the study it was necessary to establish facilities for complete calibration and repair of audiometers. These facilities were developed in the Acoustics Laboratory of the Department of Occupational Health, at the Graduate School of Public Health, and were available to us in May 1958. Arrangements were made to calibrate the study audiometers at weekly to ten-day intervals. This was continued until September, when the interval was lengthened somewhat. In December 1958, the interval between calibrations was further lengthened to one month, where it has since remained. As a result of this intensive observation of the performance of audiometers, data were obtained which will provide the basis for a publication on audiometer performance. From this experience it is felt that audiometers are much less stable than is generally thought. If this is so, it may have serious implications regarding the validity of findings of hearing tests as now conducted.

It should be noted that an objective of the group has been to conduct a "field study done to laboratory standards." Every effort is being made to see that this objective is reached.

The consistency of hearing level determinations conducted by four audiometer technicians and of otolaryngological examinations conducted by three otologists was of concern to us. As a result, two consistency tests of hearing level determinations and two of the otolaryngological examinations were made during the year. It would appear that we are obtaining consistent results from our audiometer technicians. In respect to the medical examinations, consistency is being obtained for major pathological findings; the results obtained, however, show some inconsistency when the choice is between descriptive terms, such as degrees of color, transparency and lustre of the tympanic membrane.

During the coming year, the examination of children still in the study will be continued with more intenisve study of special categories identified by analyses of the past year's data. It is anticipated that 700 to 800 new children will be added to the study in September 1959.

A major addition to the Study will be the collection of achievement test scores, intelligence test results, and other information from the school records of children. The relationships between this information and hearing will be studied, in order to search for additional signs predictive of hearing impairment and of value in case finding.

The analysis of the past year's data should provide the basis for the publication of the early results of the study. An additional subject for possible publication is that of our experience with audiometer performance. The significance of all findings will be studied in relation to case-finding.

The staff conducting the Pittsburgh Study comprises the following:

Director
Administrative Assistant
Biostatistician
Audiologist—part time
4 Audiometer technicians.
Statistical Clerk
Stenographer
3 Otologists—part time
Consultants in Audiology, Biostatistics, Otolaryngology and Public Health Methods
Public Health Nurse from Allegheny County Health Department.

Many of the above are to be used in developing the Subcommittee's national program.

Other Activities:

The cooperation, previously reported, with the study of hearing in infants and young children being conducted at the Johns Hopkins University was continued this past year. This study is producing valuable information concerning case finding in infants which will be of use to the Subcommittee when it is combined with certain data being obtained in the Pittsburgh study.

The possibility of conducting special studies in the States of Oregon and Michigan was investigated following the offer to cooperate with the Subcommittee by key persons conducting conservation programs in

these States. This matter will be explored further during the coming year.

A study of State laws relating to hearing in children was considered during the year, and contact was made with the Health Law Center recently established at the University of Pittsburgh's Graduate School of Public Health. This Center is the only organization of its type in the country and is the outgrowth of a national study of hospital legislation. It is staffed by persons experienced in health legislation and with nation-wide contacts. This group will undertake a study of laws relating to hearing for the Subcommittee when it is judged that the time is appropriate.

A mailing list for publications by the Subcommittee was prepared and the symposium presented by Subcommittee members at the 1957 meeting of the Academy was given wide distribution.

The Executive Director presented a paper to the American Speech and Hearing Association in November 1958 entitled "Objectives and Activities of the Subcommittee on Hearing in Children of the American Academy of Ophthalmology and Otolaryngology."

The following meetings of the Subcommittee have been held:

October 10, 1958, in Chicago
December 7, 1958, in Chicago
March 12, 1959, in Hot Springs, Virginia.

REPORT OF THE COMMITTEE ON THE EVALUATION OF THE NONSURGICAL TREATMENT OF STRABISMUS

DANIEL SNYDACKER, M.D., Chairman

Following the approval by the Council of the 1958 report of the Committee for the Nonsurgical Evaluation of Strabismus, a Conference was held with a representative of the National Institutes of Health. At this meeting a design for an experiment was outlined which the Committee felt would be impossible to carry out. The Committee discussed several modifications of the experiment but felt that none would be satisfactory.

It is with reluctance, therefore, that the Committee advises that the project be dropped and the Committee not be reappointed.

REPORT OF THE COMMITTEE ON IMPLANTS AND IMPLANT TECHNIQUES

A. D. RUEDEMANN, M.D., Chairman

The following report is based on the orbital implants fitted by Jardon of Detroit. The implants have been grouped into three categories. Percentages are based on a sample of 1500 implants currently supplied to the profession throughout the nation.

	PERCENTAGE
Mesh-covered spheres	65
Multi-grooved lucite spheres	20
Plain or mule spheres	15

Evisceration procedures are on the increase not only in this area, but also throughout the nation.

Conrad Noelle in Cleveland, Ohio, reports implants used there are:

	PERCENTAGE
Multi-grooved implants	50
Mesh spheres	35
Plain or mule spheres	15

Roger Alton of the American Optical Company in Southbridge, Massachusetts, bases his report on a sample of 5,000 implants supplied to the profession.

	PERCENTAGE
Plastic body with mesh cap for muscle attachment of the Lemoine Bonacollto, and sphere-and-mesh type	58
Mule sphere of acrylic or polyethylene plastic; no gold or glass	32
Miscellaneous; Radi-Rosenthal, V.A. magnetic, Arruga, King, etc.	7
Integrated of Cutler or Stone type, practically all for export	3

Cognizance must be taken of the fact that mule spheres are readily available from many sources. Therefore, the above percentage may not be valid, since neither the Jardon Plastics Research Corporation nor American Optical Company supplies gold or glass spheres.

This cross section represents distribution by the two above-mentioned manufacturers. With the exception of the categories "Miscellaneous" and "Integrated," it could represent a breakdown of the use of these implants in either evisceration or enucleation.

No records are available to show how these implants were used.

There is a noted increase in the fitting of cosmetic cover lenses over blind, discolored or disfigured eyes. Improved manufacturing and fitting techniques have made it possible to fit such patients without surgery, thus improving both the patient's appearance and his outlook.

In the New England area, enucleations still predominate; very few eviscerated cases are seen. No new integrated implants have been fitted for five years. Very few magnetic or Allen-type implants are seen.

Hugh Laubheimer reports that eviscerations are on the increase in Florida.

Charles Erickson in Seattle, Washington, reports that the Wood Lyda implant is very popular in the Northwest section of the country.

From personal communications from surgeons as well as eye-fitters, we gather that the Allen implant is used extensively in certain sections of the country.

REPORT OF THE COMMITTEE ON OPHTHALMIC PATHOLOGY

MICHAEL J. HOGAN, M.D., Chairman

I. OPHTHALMIC PATHOLOGY REGISTRY

One thousand six hundred and ninety-eight (1698) specimens were contributed to the Registry of Ophthalmic Pathology during 1958. Of these, 956 were whole eyes (691 from civilian contributors). The other 742 cases were sectioned eyes and specimens from the conjunctiva, lids and orbit (255 from civilian contributors). There is now a total of 46,573 accessions in the Registry of Ophthalmic Pathology.

On 31 December 1958 the Registry had a total backlog of 253 cases compared with 441 cases on 31 December 1957, a reduction of 188 cases. During the past year a total of 1927 final-type reports were sent to contributors. During the past year, 1809 reports were sent to contributors of unsectioned enucleated eyes plus 600 additional reports to contributors of biopsy specimens and other materials submitted for consultation.

The laboratory prepared 31,817 microslides. This figure includes 2502 slides for teaching and loan material and 7598 slides for research projects.

The Registry loan sets were borrowed by 118 individuals: 10 in the Armed Forces, 8 in the Veterans Administration, 4 in the Public Health Service, and 96 civilians.

TEACHING ACTIVITIES

Personnel in the Section of Ophthalmic Pathology are engaged in a variety of teaching activities which include (a) participation in formal courses, (b) participation in clinicopathologic conferences and seminars, (c) on-the-job training of residents and fellows, (d) preparation of microslide and lantern slide loan sets, and (e) preparation of exhibits.

1. *Courses*

a. *AFIP's Annual Course in Ophthalmic Pathology*: A course in ophthalmic pathology was conducted at the Armed Forces Institute of Pathology, March 17-21. The faculty included Dr. Lorenz E. Zimmerman, Course Director; Doctors F. C. Blodi, L. Christensen, B. Fine, A. E. Maumenee, W. M. Patterson, A. Patz, B. Rones, Brig. Gen. Victor Byrnes (USAF-MC), Miss Eleanor V. Paul and Mr. L. P. Ambrogi. The enrollment included 74 physicians: 40 from the Armed Forces and other governmental institutions, 30 civilians, and 4 foreign nationals.

b. *New Orleans Academy of Ophthalmology Course on Uveitis*: Dr. Zimmerman participated with lectures on inflammation and on the pathology of uveitis, February 23-28.

c. *Lancaster Courses in Ophthalmology*: Colby College, Waterville, Maine, July 7-19. Dr. Zimmerman participated as an instructor and lecturer during Dr. Parker Heath's course in pathology.

d. *Dr. Georgiana D. Theobald's Course*: October 13-16. During the meeting of the American Academy of Ophthalmology and Otolaryngology, Dr. Zimmerman served as a faculty member in the course on ophthalmic pathology conducted by Dr. Theobald.

e. *Thursday afternoon teaching conferences* and special lectures on ophthalmic pathology were held at the AFIP for military and civilian residents in ophthalmology in the Washington area.

f. *Basic Science Lectures for Ophthalmologists*: Dr. Zimmerman participated in

the continuing postgraduate education program of the Washington Hospital Center with lectures on the normal and pathologic histology of the eye, Saturday mornings during November and December.

2. *On-the-job Training*

The following ophthalmologists received on-the-job training and experience in ophthalmic pathology at the AFIP:

a. Capt. D. W. Longfellow, MC, USA, began a year of Army Fellowship in Ophthalmic Pathology, July 1.

b. Dr. W. H. Spencer, University of California, began a 9-month Heed fellowship in Ophthalmic Pathology, July 1.

c. Dr. T. R. McKenzie of Canada began a year of fellowship in ophthalmic pathology, sponsored by the American Academy of Ophthalmology and Otolaryngology, September 18.

d. Dr. W. M. Patterson completed a 14-month period as Junior Pathologist in the Section on Ophthalmic Pathology, September 30.

e. Dr. B. R. Straatsma completed a year of advanced training in ophthalmic pathology, sponsored by the National Institute of Neurological Diseases and Blindness, National Institutes of Health, December 29.

f. Drs. L. E. Perraut, W. H. Seward, S. S. Pappas and Robert Yudell began or completed periods of 4 to 5 months of training in ophthalmic pathology as part of their Washington Hospital Center Residency in Ophthalmology.

g. Dr. Jay Newburg completed 6 months of training in ophthalmic pathology as part of his Georgetown University-District of Columbia General Hospital Residency in Ophthalmology.

h. Dr. J. A. Foreman of Montreal, Canada, completed 3 months of training in ophthalmic pathology, sponsored by the Royal Victoria Hospital and the Canadian Navy.

i. Dr. E. V. Keates spent the summer as a volunteer observer-trainee prior to beginning his postgraduate training in ophthalmology at the University of Pennsylvania.

j. Drs. L. Apt and Sam Jones spent part of their post-residency training program in the Washington area at the AFIP, studying special problems in the Ophthalmic Pathology Section.

3. *Exhibits*

a. Mr. L. P. Ambrogi and Miss E. P. Ballou won the first prize of the American Society of Medical Technologists for their exhibit on "Processing Whole Eyes in Paraffin," at the June meeting.

b. The same exhibit won the second award in ophthalmology of the American Academy of Ophthalmology and Otolaryngology at the October meeting.

RESEARCH ACTIVITIES

1. *Clinicopathologic Studies*

a. Dr. R. Anderson initiated a study of all the rare retinal neoplasms (diktyomas, medulloepitheliomas, etc.)

b. Dr. L. Apt reviewed the histopathologically proved and presumptive cases of ocular nematodiasis.

c. Drs. L. Apt and L. E. Zimmerman initiated a follow-up study of all malignant melanomas of the eye and ocular adnexa occurring in childhood.

d. Drs. B. Fine and L. E. Zimmerman completed a review of all postoperative and posttraumatic intraocular fungous infections.

e. Drs. J. Foreman, R. Shuman, and L. E. Zimmerman initiated a study of orbital rhabdomyosarcomas.

f. Drs. A. Forrest and L. E. Zimmerman continued their study of the occurrence of post-irradiation sarcomas of the orbit, especially in relation to treatment of retinoblastomas.

g. Drs. L. V. Garron and L. E. Zimmerman continued their study of primary melanocytomas of the optic nerve head.

h. Drs. S. Jones and L. E. Zimmerman continued their clinicopathologic and histochemical study of the corneal dystrophies.

i. Drs. D. Longfellow, W. Spencer, and L. E. Zimmerman initiated a review of all cancerous, precancerous, and dyskeratotic lesions of the limbus.

j. Drs. L. Perraut and L. E. Zimmerman completed a study of the occurrence of glaucoma as a complication of occlusion of the central retinal artery.

k. Drs. B. Rones and L. E. Zimmerman continued their review and follow-up study of iris tumors.

l. Drs. W. Spencer and L. E. Zimmerman initiated a study of retinoschisis.

m. Drs. B. Straatsma and L. E. Zimmerman reviewed all cases of mucormycosis, systemic as well as orbital.

n. Dr. L. E. Zimmerman and Miss E. V. Paul have continued working on the long-term follow-up study of epibulbar and intraocular malignant melanomas.

o. Dr. L. E. Zimmerman and H. Rappaport have continued their long-term clinicopathologic study of lymphoid tumors and related lesions of the ocular and orbital tissues.

2. *Experimental Studies*

a. With the financial support provided by a grant from The Council for Research in Glaucoma and Allied Diseases, Alfred P. Sloan Foundation, Inc., Drs. Silverstein and L. E. Zimmerman have pursued their studies of immunogenic uveitis.

b. Drs. B. Fine and L. E. Zimmerman have continued their studies of mycotic infections of the eye aided, in part, by a Fight for Sight Award of the National Council to Combat Blindness, Inc.

c. Mr. A. Housimis and Dr. B. Fine have initiated an intensive study of the intrastructure of the iris, using biophysical methods including electron microscopy. This work has been supported in part by funds from NIH Grant B-1021.

d. Dr. L. E. Zimmerman has continued his histochemical studies of ocular acid mucopolysaccharides, concentrating upon those found in the amelanotic retinal pigment epithelium of albinos and about the visual cells.

STAFF

As of 31 December 1958 the regular AFIP staff personnel in the Section on Ophthalmic Pathology consisted of:

Lorenz E. Zimmerman, M.D., Chief of Section and Registrar, Registry of Ophthalmic Pathology
Ben Fine, M.D., Research Associate
William M. Patterson, M.D., Assistant Chief of Section (Jan.-Sept.)
E. V. Paul, Medical Histologist and Assistant to the Chief of Section
Gertrude R. Lewins, Secretary
Florence Coles, Clerk-Typist

II. TEACHING MANUAL

The work on the teaching manual has had to be suspended the past year because of the large amount of work on the revision of the Atlas and Textbook on Ophthalmic Pathology. It is expected that the manuscript will be completed by the first of July 1960. Work will be resumed on the teaching manual next year.

III. OPTHALMIC PATHOLOGY LABORATORIES

It is recommended that the same list of laboratories be reprinted in the TRANSACTIONS as for 1958, no new requests having been received.

IV. THE OPHTHALMIC PATHOLOGY ATLAS

All except one chapter has been turned in by the authors. Five chapters have been reviewed by the Committee and are now in the third revision. Four chapters have been through an initial review and are in the second revision. Three chapters have just been completed and have not been reviewed by the entire Committee. This will be done at the October 1959 meeting. It is hoped that the new Atlas will be available for the October 1960 meeting.

REPORT OF THE COMMITTEE ON OTOLARYNGIC PATHOLOGY

PAUL H. HOLINGER, M.D., Chairman

The Committee met during the meeting of the Academy in October 1958. Minutes of the meeting are appended, together with a report by Dr. Samuel Rosen, Registrar, Registry of Otolaryngic Pathology, Armed Forces Institute of Pathology. He stated the slide loan sets of normal and representative otolaryngic pathology had been completed. A new project of 2×2 lantern slide sets of gross specimens, roentgenograms and histopathology had been initiated. Temporal bone preparations are progressing, starting with sections in horizontal and vertical planes. A third plane may be added to the sets later. The registry limits were defined and a survey contemplated consisting of a statistical study of carcinoma of the larynx. Certain common entities such as tonsillitis, nasal polyps and vocal nodules need not be added to the reg-

istry in the future. The residency status at the Institute was received and no applicant has completed the requirements.

During the year additional applications for fellowships in pathology have been received, some of which suggested that the Academy fellowship need not be limited to the A.F.I.P. This would make the Academy Pathology Fellowship program more flexible, and clarification as authorization of such a program is requested for discussion at the committee meeting in October 1959. Various institutions could be considered by the Committee and recommendations made to the Council. Applicants could likewise be judged by their credentials and recommended to the Council.

It is requested that the Council consider adding the following in the Committee listing in the Academy bulletins and TRANSACTIONS: Consultant in Pathology at the A.F.I.P.—Samuel H. Rosen, M.D., Registrar, Registry of Otolaryngic Pathology, Armed Forces Institute of Pathology, Washington, D. C.

It is requested that two additional members be appointed to the Committee: Dr. George Kelemen, Boston, and Dr. Francis L. Lederer, Chicago.

REGISTRY OF OTOLARYNGIC PATHOLOGY

October 15, 1958

I. *Atlas of Otolaryngic Pathology*

Dr. F. K. Mostofi, Scientific Director of the American Registry of Pathology, submitted the following report on the Atlas of Otolaryngic Pathology:

Atlas sales for the year ending Sept. 30, 1958: 275 copies

Total sales through Sept. 30, 1958: 1218 copies

An agreement was reached between the American Registry of Pathology and the National Academy of Sciences on the disposal of the remaining copies of the Atlas, whereby 1500 copies will be transferred to Dr. Benedict to be sold through the Academy.

II. *Slide Study and Teaching Sets*

1. In the first week of September, 100 study sets of 85 micro slides each were completed. These were considered to be fairly representative of pathological entities as well as of normal histology in otorhinolaryngology. About 25 sets were immediately mailed to the accumulated list of requestors.

We are continuing to accumulate material in both categories and shall add additional slides to the sets as soon as they become available. We anticipate that the projected set of 100 slides will be completed in the not too distant future.

When sufficient material has been gathered it may be found desirable to break the set down into two, namely, one of 100 slides of pathologic entities, and one of about 20 slides of normal histology.

2. Through the initiative and effort of three Walter Reed Army Hospital ENT residents, 3 teaching sets of 2 × 2 *lantern slides* are well on the way to completion. The work was accomplished in the past year and a half during the training periods spent by these residents in the Section of ENT Pathology of the AFIP. The sets will consist of the following:

A. Otorhinolaryngic histopathology: about 100 lantern slides

B. Roentgenograms of otorhinolaryngic entities: 100 or more lantern slides

C. Clinical (including some gross pathology) photographs of otorhinolaryngic entities: 200 or more lantern slides

Sets B and C should be completed within the next few months and set A within a year. All three sets will be made available through the Medical Illustration Section of the AFIP on a loan basis.

III. *Temporal Bones*

The situation with regard to temporal bones at the AFIP was presented in some detail in a letter sent to Dr. Fowler and to Dr. Lindsay in November 1957. A copy of that letter is appended to and made a part of this report.

Although the situation at present is little altered from last year, it is expected to show increasing progress in the near future. A technician who is qualified for this type of work has been selected, and it is planned to set up a laboratory where he can begin the trial processing of the animal temporal bones shortly. The clinical aspect of the project should get under way in July when Dr. William Nicol, Air Force ENT resident in training at Johns Hopkins Medical School, will be assigned to the project as part of his residency training. In the past year 10 sets of human temporal bones from air craft accident fatalities, and 4 sets of experimental animal (chimpanzee and bear) temporal bones have been acquired. These bring the totals

of temporal bone sets awaiting processing at the AFIP to about 40 human and 19 animal (chimpanzee, hog and bear).

IV. *Registry of Otolaryngic Pathology*

1. The Medical Statistics Section of the AFIP in collaboration with the Registrar of the Registry of Otolaryngic Pathology has prepared a report on the Registry which is appended here.

2. Consideration is being given by the Registrar of the Registry of Otolaryngic Pathology and the Medical Statistics Section of the AFIP to the use of Registry material for statistical surveys, within the limitations imposed by available time and personnel. Suggestions would be entertained from this committee for the selection of a particular disease entity for such a joint study. However, the final selection would be predicated on there being enough cases in the group to justify the effort. The investigation would not necessarily be restricted to cases which have been entered in the Registry; others in the files of the AFIP might be utilized and suitable cases among them might be registered. In addition, the cooperation of the Committee might be requested in contributing a specific number of cases needed to make the study representative, with the stipulation that the contributions should include not only atypical or problem cases, but also those which are considered typical or routine examples of the diagnosis selected for study. The first survey might be based on all cases of squamous cell carcinoma of the larynx in the ENT Registry and AFIP files with the objective of determining prognosis by survival rates of those patients with no treatment prior to time of receipt of the first specimen at the AFIP and with no detectable metastasis at that time.

3. It is recommended that the code for anatomic sites as well as the diagnostic code of the Registry of Otolaryngic Pathology be reviewed with the objective of making whatever changes seem indicated to ensure coverage of all sites and diagnoses desired by the Committee, and to avoid cluttering of the Registry with large numbers of common, relatively unimportant conditions. For example, the oral region, including salivary glands, is not now included in the Registry of Otolaryngic Pathology, since this is considered the province of the Section of Dental and Oral Pathology at the AFIP and is included in the Registry of Dental and Oral Pathology. If the Committee thinks it desirable, this anatomic site could be duplicated in the Registry of Otolaryngic Pathology, but the practicality of such a move seems questionable, especially since the material involved would not have been reviewed by the Section of ENT Pathology. A similar case might be made for the esophagus and bronchi. With regard to the diagnostic code, such common entities as tonsillitis and laryngeal nodules have been dropped from the Registry. The Registrar would welcome suggestions from the Committee for possible revision of the Registry codes. In particular it would be desirable that the Committee indicate specifically (1) what anatomic sites they would wish to have included in the Registry and (2) what common entities might be excluded from the Registry.

V. *Residencies*

1. The status of the residency training program in ENT pathology at the AFIP was outlined in a memorandum prepared by the Registrar in December 1957 for the use of The Director of the AFIP in replying to an inquiry by Dr. P. N. Pastore of the Medical College of Virginia regarding the possibility of civilian residency training in otolaryngic pathology at the AFIP. A copy of this memorandum is appended to and made a part of this report.

2. An inquiry was recently received from a Dr. Gerald Landau, address Jackson Memorial Hospital, Miami, Florida, concerning "an opportunity to study Ear, Nose and Throat Pathology" at the AFIP. Dr. Landau was informed of the Academy fellowship in otolaryngic pathology, and was advised, if interested, to submit his curriculum vitae, including a statement of his future plans, to Dr. Holinger in time for consideration by the Committee, meeting in Chicago during the week of October 13 to 17.

S. H. Rosen, M.D.
Registrar, Registry of
Otolaryngic Pathology

27 November 1957

Dear Doctor Fowler:

In response to your inquiry of 12 November 1957 addressed to Doctor Samuel H. Rosen, Registrar of the Registry of Otolaryngic Pathology, the following is an outline of the present temporal bone project at

the Armed Forces Institute of Pathology, under the supervision of Captain Vernie A. Stembridge, Chief, Aviation Pathology Section, AFIP, and under the general coordination of Lt. Colonel Ralph M. Kraus, Chief, ENT Department, School of Aviation Medicine, Randolph Air Force Base, Texas.

1. There are at present available at the AFIP about 30 sets of human temporal bones from Air Force personnel, as well as 6 sets of temporal bones from chimpanzees and 9 sets from hogs used in experiments in Aviation Pathology. Additional human temporal bones are being received at the rate of about 1 or 2 sets per month.

2. Mr. Ambrogi, Chief of Histopathology Laboratories, AFIP has undertaken to process the temporal bones. The Air Force has supplied him with an extra technician for this purpose.

3. It is planned to process the animal temporal bones first on a practice basis. If the results are satisfactory, they will proceed to process the human bones. If the results are not entirely satisfactory, it is planned to arrange for additional training of the technician in the laboratory of Dr. Fowler, Dr. Guild or Dr. Lindsay before proceeding to process the human temporal bones.

4. The human temporal bones are from aircraft accident cases and will be handled as follows:

a. If the accident is thought to be due to spatial disorientation, the temporal bones will be sectioned for the vestibular apparatus.

b. If the accident is due to a known cause, such as mechanical failure, the temporal bones will be sectioned for the acoustic apparatus.

c. In both instances the health records, including audiograms, will be correlated with the findings in the temporal bones. Review of the health records and audiograms has been assigned to Dr. William Nicol, Air Force resident in ENT at Johns Hopkins Medical School.

It would appear from the above program that there is no need, at least for the present, to request that the Academy of Ophthalmology and Otolaryngology subsidize a technician. Should the scope of temporal bone processing expand to a considerable degree, it may be desirable to do so. However, at that juncture it might also be desirable and probably essential that the Academy sponsor and make every effort to fill a one-year fellowship in ENT pathology at the AFIP to enable the staff to handle the temporal bones at the professional level. At present, it is not feasible to encourage submitting of temporal bones by civilian sources for processing at the AFIP. That should await and depend on the experience with the present undertaking.

Your suggestion that the temporal bone sections might be submitted for interpretation to such specialists in the field as Dr. Guild, Dr. Lindsay or yourself is appreciated. That, however, is also a matter for future consideration when the processing of the temporal bones approaches the sectioning stage.

Sincerely yours,
W. M. Silliphant
Captain, MC, USN
The Director

REPORT OF THE REGISTRY OF OTOLARYNGIC PATHOLOGY AS OF 31 DECEMBER 1957

As of 31 August 1957 there were 6439 cases entered in the Registry of Otolaryngic Pathology; 6413 of them had been abstracted in coded form on IBM punched cards and were available for reporting purposes or for the selection of diagnostic groups to be followed. However, many cases were erroneously entered during the earlier years of the Registry because of inadequate definitions of otolaryngic sites and for other reasons; 268 such cases were deleted subsequent to 31 August 1957.

There were 6179 cases in the Registry as of December 1957. The 34 new cases that were registered did not offset the 268 deletions. However, it was deemed advisable to report the status of the Registry as of the end of the calendar year in order to make possible future analyses of trends in registrations. The tables attached hereto reflect only the net changes from 31 August 1957 through 31 December 1957; future reports will reflect the changes that transpire during the calendar year.

The tables attached were prepared from IBM cards coded by the Medical Statistics Section of the AFIP and give the distributions of cases by major contributor and period in which accessioned (Table I) and by principal anatomic site and type of material available for study (Table II).

There are collateral values in having the cases on IBM cards; namely, to evaluate the

Table I

Registry of Otolaryngic Pathology By Contributor

Contributor	Cases					
	Total		1956 and prior years		1957	
	No.	%	No.	%	No.	%
Total	6179	100	5980	100	199	100
Army	2520	41	2505	42	15	8
Navy	447	7	435	7	12	6
Air Force	207	3	197	3	10	5
Veterans Administration	1688	27	1542	26	146	73
Civilian	1233	20	1218	20	15	8
Others[1]	84	2	83	2	1	—

[1] Others include U. S. Public Health, White House, FBI, St. Elizabeth's Hospital, Balboa Hts. and Gorgas/Board of Health Laboratory, Ancon, Canal Zone; and other U. S. government facilities.

Table II

Registry of Otolaryngic Pathology By Anatomical Site and Type of Material

Anatomic site	Total	Type of material		
		Surgical	Surgical and autopsy	Autopsy
Total	6179	5550	470	159
Neck	2736	2517	178	41
Superficial neck	311	307	4	—
Deep neck	2405	2194	170	41
Specific site, n.s.	20	16	4	—
Nose	1311	1235	57	19
Nasal chamber	1034	1006	24	4
Paranasal sinus	260	218	27	15
Chamber and sinus	17	11	6	—
Pharynx	1453	1188	201	64
Nasopharynx	401	310	67	24
Oropharynx	1050	877	133	40
Naso- and oropharynx	2	1	1	—
Ear	498	466	20	12
Bone	129	95	13	21
Other sites	52	49	1	2

content of the Registry, select diagnoses for follow-up and research investigations and to collect additional cases that are needed to make the Registry more representative.

TRAINING PROGRAM IN OTOLARYNGOLOGY

To Capt. W. M. Silliphant, The Director
From Dr. S. H. Rosen

30 December 1957

Re: Inquiry from Dr. P. N. Pastore regarding Training Program in Otolaryngology at AFIP.

1. I believe this inquiry may stem from a questionnaire on the pathology training of otolaryngology residents being distributed to medical schools by the American Academy of Ophthalmology and Otolaryngology. I am appending a copy of this questionnaire for your information. Please return it when you have finished with it.

2. The present status of our program, if it may be called that, for training of otolaryngology residents in ENT pathology is as follows:

a. The WRAH residents in otolaryngology are assigned to the Section of ENT Pathology at the AFIP full time for 2 or 3 months at intervals of 1 to 3 months. The duration of the assignment and the interval between assignments depend upon whether a resident can be spared from clinical duties at WRAH, which, in turn, is determined by the number of residents in training.

b. The Section of ENT Pathology indicated that it was in favor of establishing a 6-month to 1-year training program for residents of the military services when a memorandum on that question was circulated within the past year. We have had no further indication of the intentions of the military services in that matter.

c. The Chief of the Section of ENT Pathology, strongly recommended to the Committee on Otolaryngic Pathology of the Academy of Ophthalmology and Otolaryngology that the Academy sponsor and make every effort to fill a 1-year or, as a compromise, a 6-month fellowship in ENT pathology at the AFIP. The Committee pointed out that such a fellowship has been in existence for several years, but that there have been no applicants. While something may develop from this new effort, there is no indication of whether or when results may be expected.

3. With respect to Dr. Pastore's questions, I would say there is the possibility that an arrangement similar to that with WRAH, but preferably for 6-month periods, might be entered into with a civilian hospital in or outside the Washington area. However, that would depend upon whether any indication is given that items b and c above, may be implemented. Limitations of space and of personnel for handling the routine work would, I think, place a limit of not more than 3 on the number of ENT residents or fellows who could be taken care of at any one time, and the military services and the Academy of Ophthalmology and Otolaryngology would, of course, receive priority.

4. This whole matter, in my opinion, needs further exploration and some decisions and action on the part of the military and the Academy.

S. H. Rosen, M.D.

REPORT OF THE COMMITTEE FOR RESEARCH IN OTOLARYNGOLOGY

Harold F. Schuknecht, M.D., Chairman

The establishment by the Council, of a Committee for Research in Otolaryngology in October 1958 gave official status to an existing unofficial "working group" which had generated spontaneously in 1956. This former group called themselves the ad hoc Committee for Research in Otolaryngology and had sponsored scientific meetings preceding the annual Academy meetings in both 1957 and 1958.

Since receiving the official notification on November 4, 1958, the chairman has appointed the following committee members, who were previously members of the ad hoc Committee for Research in Otolaryngology: Cesar Fernandez, M.D.; Aram Glorig, M.D.; Victor Goodhill, M.D.; Merle Lawrence, Ph.D.; W. Dewey Neff, Ph.D.; G. O'Neil Proud, M.D.; Joseph Sataloff, M.D.; Harold F. Schuknecht, M.D., Chairman; Ben H. Senturia, M.D.; Catherine Smith, Ph.D.; Juergen Tonndorf, M.D.; Hans von Leden, M.D.

Because the program of awards for original investigation in otolaryngology was transferred from the Committee on the Conservation of Hearing (where it had its inception) to the Committee for Research in Otolaryngology, Juergen Tonndorf was appointed

chairman of the Awards Subcommittee, to choose two other committee members and arrange for the selection of award winners for 1960.

Doctor W. D. Neff was appointed program chairman for 1959. He has arranged a scientific program consisting of twelve scientific contributions to be held on October 10, 1959, in Room P-117 at the University of Chicago Clinics.

The following award winners for 1959 will each receive a $500.00 cash award and a plaque on Monday, October 12, at the beginning of the Otolaryngology Scientific Sessions: Irving M. Blatt, M.D., "Sialography"; Stanley D. Greenberg, M.D., "Tracheal Homografts"; Brian F. McCabe, M.D., "Effects of Intense Sound"; T. Manford McGee, M.D., "Streptomycin Ototoxicity."

The next business meeting of the Committee will be held on Saturday morning, October 10, prior to the Scientific Sessions.

REPORT OF THE COMMITTEE ON STANDARDIZATION OF TONOMETERS

ELMER J. BALLINTINE, M.D., Chairman

Tonometer Specification

Five years have elapsed since the publication of the Decennial Report of the Committee on Standardization of Tonometers. In this period numerous modifications of the 1954 specification (Spec. No. 4) have been made by action of the Committee, but no formal summary or restatement of the specification has been published. Therefore, during the past year the Committee undertook to rewrite the specifications for mechanical and electrical tonometers, incorporating all of the changes voted by the Committee, and to publish the specifications in the TRANSACTIONS of the Academy so that they will be available to all those interested. During the year members of the Committee met with representatives from Dr. Hans Goldmann's clinic, tonometer manufacturers and commercial testing laboratories interested in certifying tonometers, in an effort to resolve all points of disagreement on the wording and meaning of the specifications. Substantial agreement was reached on June 8, the new specification was adopted by the Committee, pending final agreement with the manufacturers in several small details. It is expected that this agreement will be reached at the October meeting of the Committee and that the final wording of the specification will be ready for publication within a few months.

During the discussions of the new specifications, it became apparent that if the specifications were to require inspection, on each tonometer, of all the factors found to be of importance in the performance of the instrument, the inspection cost would be materially increased. On the other hand, many of the critical factors are controlled automatically by the methods of manufacture and in an overwhelming majority of instruments never cause any difficulty. It was further pointed out that in the past the specifications usually have not stated how the testing for compliance was to be performed, and although the Committee has not included an item in the specification without having devised some adequate means for inspection, the methods that the Committtee proposes to use have not always been published nor, in some cases, carefully standardized.

It was agreed, therefore, that in the future the Committee should work toward a specification that would consist of three main parts. First will be a statement of the specification in absolute units, such as millimeters and grams, of the essential points of the tonometer for which the testing stations will be required to examine each instrument or such samplings of instruments as the situation requires.

The second part of the specification will be a statement of the method by which the Committee will determine whether the instrument meets the requirements of the first part of the specification. While these methods have been written up in more or less detail in the decennial report and in the minutes of the Committee meetings, they have never been published in their entirety. The Committee should, therefore, submit these methods for publication in the TRANSACTIONS of the Academy as rapidly as possible so that they will be available to all those interested.

The third part of the specification will consist of recommendations. These are tonometer features which have been found to be important but usually do not cause any difficulty and are items which, in the interest of economy, the testing laboratories will not be required to test on each instrument. If an instrument which passes all tests in the first and second parts of the specification is found to be unreliable in its performance because of deviation from the recommendations or to

have obvious defects not covered in the first two parts of the specification, the instrument can then be rejected on the grounds that the workmanship is not of "high quality, consistent with the standards of sound engineering practices."

Tonometer Calibration

Following the demonstration by Moses and Hahn that the diameter of the footplate hole affected the low-scale tonometric readings (higher intraocular pressures), the Cleveland testing station attempted to determine how important this factor was in the calibration of tonometers. It was found that measuring the footplate hole with a "small hole gauge" did not give a reliable measure of the effective diameter of the footplate hole because of the rounding of the junction of the footplate bore with the footplate concavity.

When the "dye rub-off method" was used, the effective diameter of the footplate hole measured by this method was, in many cases, larger than had been expected—in extreme cases as large as 7.5 mm. in tonometers which met the specification in all other respects. Readings with these tonometers were compared with readings obtained with a standard tonometer having a functional footplate hole diameter of 3.7 mm. The results confirmed precisely the work of Moses and Hahn, and indicated that in some instruments the tonometer readings are lower than they should be for all readings less than 5 in extreme cases. Therefore, it was decided to standardize the functional hole diameter at 3.7 mm. With this hole diameter all tonometer readings less than 3.5 scale divisions are unreliable and must be disregarded, and the intraocular pressure should be measured with the next heavier weight.

Testing Station

At its meeting in October 1958, the Committee discussed at length the future functions of the three testing stations in the United States. It was decided that a good part of the functions of the testing stations was now routine and could be carried out effectively by trained technicians. Affiliation with a glaucoma service and supervision of the testing station by an ophthalmologist experienced and interested in the standardization of tonometers was considered to be an essential requirement. It was agreed, therefore, that the activities of all testing stations in the United States would be consolidated in the Cleveland station. On March 1, 1959, the Cleveland testing station took over the work previously carried out at the stations operated by Dr. Posner and Dr. Harrington.

It was also pointed out that in the past the expenses of the testing stations were only partly defrayed by the charges made for calibration, and that the balance has been covered by University funds. In the early years this situation was justified by the largely investigative nature of the activities of the testing stations, but in the last few years the work of the testing station has been increasingly routine. The Committee therefore recommended to Dr. Benedict that the routine work at the Cleveland testing station be done by a technician and that the Academy contribute $2,400 per annum to her salary. This arrangement was approved by the Council, and since March 1, 1959, this arrangement has been in effect.

During the transition period which coincided with the investigation of the effect of the footplate hole diameter, a backlog of tonometers to be calibrated accumulated. Since the training of technicians has been completed and the number of measurements on patients reduced, the backlog has been completely worked off.

A report on the activities of the testing stations and commercial testing laboratories is attached.

Commercial Testing Laboratories

For several years it has been apparent that the shipping of electric tonometers from Chicago to New York for certification by Electrical Testing Laboratories has been uneconomical, and the Committee has attempted to work out an arrangement with some agency more conveniently located to Chicago for this work. Through the efforts of V. Mueller & Company, the Inland Testing Laboratories of the Cook Technological Center, Morton Grove, Illinois, has undertaken the certification of electric tonometers. The development of the facilities for certification has been mostly under the direction of Mr. Irving Hazard, Project Engineer at Inland Testing Laboratories. Mr. Hazard appears to be most diligent and ingenious in pursuing this work and to have developed considerable insight into the problems involved. The chairman and several members of CST were favorably impressed with the rigorousness of the inspection by Inland Testing Laboratories. The chairman and several members of the Committee think that if the Inland Testing

Laboratories continue their interest, they should be designated as an official testing agency by the Academy.

Membership

At the June meeting of the Committee, Dr. Hertha Binder was asked to become a member of the Committee. Dr. Binder is associated with Dr. Ballintine at the Eugene Halle Glaucoma Service and does much of the testing of tonometers for the Cleveland station.

Symposium on Tonometry and Tonography

Dr. Peter C. Kronfeld agreed to act as moderator for the symposium on tonography to be presented as part of the program of the Annual Meeting of the Academy in October 1961. Dr. Kronfeld has arranged a tentative program and will present it in final form after the 1960 meeting of the Academy so that the material in the tonography symposium will be correlated with what is presented at the 1960 symposium on glaucoma.

Exhibit on Tonometer Calibration

At the June 8 meeting of CST, a communication from Dr. Kenneth L. Roper suggested that the Committee of Standardization for Tonometers sponsor an exhibit on the standardization of tonometers. Mr. R. O. Gulden and Dr. Conrad Berens has previously approached Dr. Benedict for space for an exhibit on a similar subject to be sponsored by Dr. Berens and the Ophthalmological Foundation. The Committee believes that enough new information on the functioning of tonometers has accumulated to justify an exhibit in October 1960 at the annual meeting of the Academy to show what progress has been made. At present, the Committee is not able to reach an agreement on recommendations for sterilization of tonometers and would prefer not to include this feature in a Committee-sponsored exhibit.

The Committee thinks it would be appropriate for Mr. Gulden to exhibit as a commercial exhibitor to present the excellent service which he now offers in the calibration and repair of tonometers. The Committee thinks that Mr. Gulden is offering a valuable service to ophthalmologists and the features of his service should be more widely known. He has made an effort to keep his charges low and the testing station at Cleveland has been favorably impressed by the quality of his work and the low prices charged. It might be difficult, therefore, for Mr. Gulden to pay the cost of a commercial exhibit without hardship. The Committee has no objection to Dr. Berens' sponsoring a scientific exhibit on tonometers along with Mr. Gulden, but the Committee thought it inappropriate for the Committee on Standardization of Tonometers to be connected with such an exhibit.

Future Plans

The publication of the new specifications and the methods of testing will be continued. An investigation of the possibility of simplifying the form of the tonometer plunger and eventually reducing the cost of the tonometer has been instituted and will be pursued during the coming year. Dr. Hans Goldmann has been approached on the problem of standardization of applanation tonometers, and during the coming year we hope to arrive at tentative performance specifications for this instrument. The chairman thinks, therefore, that the activities of the Committee should be continued.

REPORT OF THE COMMITTEE ON SURGERY OF THE HEAD AND NECK

LeRoy A. Schall, M.D., Chairman

The American Academy Committee on Surgery of the Head and Neck held its first organizing committee meeting during the Academy meeting in Chicago in 1958. This was a dinner meeting attended by approximately 30 guests and members of the committee. Since this meeting, there have been two other meetings held by the Committee. One was at Hot Springs, Virginia, during the meeting of the national special ear, nose and throat societies and the second one was in New York.

From these three meetings the Committee felt that it was time to organize a society whose main interest would be surgery of the head and neck. The next meeting of the Committee will be held after the Council Meeting in early October to be followed by a larger meeting of those interested in the formation of a new society.

REPORT OF THE COMMITTEE ON USE OF DIAGNOSTIC PROCEDURES AND THERAPY IN UVEITIS

A. D. Ruedemann, Sr., M.D., Chairman

The Academy Committee on Uveitis has been concerned with the administration of

the Field Investigation on the Use of Diagnostic Procedures and Therapy in Uveitis supported by grant 3-B9023 (B-2359 C2) made by the NINDB in April 1957. The grant has been approved for the same annual amount, $43,435.00, until March 31, 1960.

The Academy Committee on Uveitis met with several advisors at the Palmer House on October 15, 1958. A free discussion of the objectives of the Investigation revealed a divergence of opinion on every practical phase of the work. Some doubted the reliability of skin tests and patient reports; lack of confidence was expressed in statistical reports of patient examinations and on laboratory reports. It was generally agreed that lack of controls vitiated the result of tests. No agreement was reached on how controls should be selected, but there was general assent that controls should be used. The answer seemed to be a selection of test centers where 25 or more uveitis patients and an equal number of controls could be completely tested with the full kit of antigens and complete reports filed with the Academy Secretary. It was proposed that a number of institutions make application for special grants from the NINDB for this purpose. Eighteen applications were filed with the NINDB but were disapproved by the Study Group, and the Council, in June 1959, sustained the action of the Study Group. Consequently, the administration of the Investigation was continued as before except that when the Division on Biostatistics of the NINDB was asked to take over the statistical work of the Committee, the title was changed from Field Investigation to Collaborative Investigation. The NINDB Field Investigation Committee expressed disapproval of the present Investigation and recommended that a committee of five ophthalmologists be appointed to study the matter and report to the Council of NINDB in November 1959.

At a meeting of the Uveitis Committee in Chicago, March 24, 1959, the laboratory and patient report forms were reviewed and suggestions made for changes in both. The task of revising the forms was delegated to Dr. Goldstein, Dr. Wahlen and Dr. Leopold. The latter two also agreed to revise the book of directions. During the past twelve months a number of minor changes were suggested. The book of directions was revised by Dr. Leopold and Dr. Alan Woods. The patient report forms were revised and shortened. The revised book and forms were printed in Rochester and mailed to all collaborators and inquirers in August 1959.

The kits of antigens assembled by Hollister-Stier Laboratories are available and sent on request to collaborators in this country and abroad. Tests on sera for toxoplasmosis, brucellosis and leptospirosis are made at the CDC Laboratory, Chamblee, Georgia, and duplicate reports sent to the Academy Secretary. The Academy in 1958 appropriated $10,000.00 for this service in 1959.

To September 1, 1959, 183 diagnostic kits have been distributed to 149 collaborators. Dr. Alan Woods was appointed Special Consultant on Uveitis to the Academy Uveitis Committee.

REPORT ON THE AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE

M. Elliott Randolph, M.D.
Academy Representative

As representative of the American Academy of Ophthalmology and Otolaryngology to the American Association for the Advancement of Science, I have nothing of importance to report concerning the activities of this organization.

REPORT ON AMERICAN BOARD OF OPHTHALMOLOGY

Gordon M. Bruce, M.D.
Academy Representative

As your representative to the American Board of Ophthalmology I submit herewith my final report after serving for eight years, two of them as Chairman.

Since the report submitted to you last year the most significant developments have been (1) a closer liaison with the Residency Review Committee and the Advisory Board for Medical Specialties, and (2) the adoption of a new Constitution and set of By-laws. In the latter case the principal changes had to do with limiting the age of Board Members to 65 and that of Consultants to 70, the creation of a Nominating Committee, and a revision of the Duties of the Committee on Examinations. At the same time the long dormant title of Emeritus Member was revived and Doctors Benedict, Berens and Atkinson were elected to the position.

Committees are currently at work studying the methods of preparing surgical case re-

ports, and the requirements for foreign candidates.

In summary, 116 examinations have been held, followed by the issuance of 4,998 certificates. The 1959 Written Examination was held on January 26 in 22 cities. The examination was given to 215, of whom 174 passed and 41 failed.

Since September 1, 1958, 198 applications have been received.

One hundred and two sets of slides are available, and there were 175 rentals.

The 1958-59 Practical and Oral Examinations were held as follows:

	No. Candidates	*Passed*	*Failed*	*Conditioned*
San Francisco				
June 17-21	135	104	10	31
Chicago				
October 7-10	100	82	5	16
Philadelphia				
June 3-6	130	113	4	13

Practical and Oral Examinations scheduled for 1959-60 are:

St. Louis, October 6-10, for approximately 85 candidates.

San Francisco, May 1960, for approximately 125 candidates.

Chicago, October 1960, for approximately 80 candidates.

Sixty-one ophthalmologists have served, or are serving, on the Board which was organized in 1916.

There are 12 members, 3 consultants, 3 emeritus members.

The officers for 1959 are:

Chairman: Gordon M. Bruce, M.D.
Vice Chairman: Paul A. Chandler, M.D.
Secretary-Treasurer: Merrill J. King, M.D.

REPORT ON AMERICAN BOARD OF OTOLARYNGOLOGY

FRANCIS E. LEJEUNE, M.D.
Academy Representative

As your representative of the American Academy of Ophthalmology and Otolaryngology on the American Board of Otolaryngology, I wish to report to you that the American Board of Otolaryngology held an examination in Chicago October 5, 1958, at which time ninety-three candidates were examined. Of this number seventy passed, nineteen were conditioned, and four failed.

The Board held another meeting on Sunday, May 24, 1959, to discuss the requirements for certification. The minimal requirements were changed to four years and will become effective July 1, 1960. The four years will include one year of general surgery and three years of otolaryngology.

An examination will be held in Chicago this year from October 5 to October 9 and approximately 104 candidates will be examined.

REPORT ON AMERICAN COMMITTEE ON OPTICS AND VISUAL PHYSIOLOGY

JAMES E. LEBENSOHN, M.D.
Academy Representative

As the senior representative, I am submitting to the American Academy of Ophthalmology and Otolaryngology a report of the American Committee on Optics and Visual Ophthalmology for the past year. Other representatives of the American Academy of Ophthalmology and Otolaryngology are Frederick C. Cordes, M.D., and Kenneth C. Swan, M.D. Also there are three representatives, respectively, from the Section on Ophthalmology of the American Medical Association, the American Ophthalmological Society and the Association for Research in Ophthalmology. During the past year, Dr. Conrad Berens has served as Chairman, and Dr. Gerald Fonda as secretary.

The Seventy-Third Meeting of the American Committee on Optics and Visual Physiology was held at the meeting of the American Academy of Ophthalmology and Otolaryngology in Chicago on Sunday, October 12, 1958. Louise Sloan, Ph.D., and Richard Blackwell, Ph.D., were present by invitation.

The following actions were taken by the American Committee at this meeting:

1. The Subcommittee on the Standardization of Reading Type agreed upon the details of the vision charts, both for distance and for near. Several minor suggestions were made as to arrangement of letters and spacing. This will be worked out by the Committee and the charts should be available soon.

2. The Subcommittee on Study for Screening Tests for Color and Lantern Tests. Dr. Louise Sloan, in an informative report, recommended the Ishihara charts and the Farnsworth D-15 set as reliable tests. The Boström Swedish charts are acceptable, though they occasionally misclassify normals.

3. The Subcommittee to Cooperate with Council on Physical Medicine. The suggestion was made that this subcommittee be discontinued, as it had given up evaluating instruments.

4. The Subcommittee on Low Vision Lenses. Dr. Fonda held a Low Vision meeting in the Palmer House in the afternoon of October 12, to which about thirty interested individuals were invited. They concluded, in summary, that:

(a) Refraction of patients with subnormal vision is less accurate with telescopic spectacles than it is when the visual acuity chart is brought within 10 or 5 feet of the patient.

(b) The most realistic measurement of acuity with a reading aid designates the size of print easily read and the distance used.

(c) Optical aids for near vision should be expressed in diopters, e.g., 20 D. rather than 5 ×. This aids the optician in knowing at what distance the patient must read. The size of the retinal image depends upon the equivalent power, the reciprocal of the equivalent focal length, measured from the principal plane. The working distance depends on the anterior focal length. In the case of a Galilean telescope used to enlarge the retinal image of a distant object, the specification by magnification is not arbitrary and is the only method that can be used.

(d) Spectacle reading aids of the bifocal type are generally preferable to those of the single-vision type. With the latter the user is blind to everything except the reading page itself. The visual axis must not be too far from the optical center of the reading segment. Reading segments of plus 24 D. or more should extend to the upper border of the pupil or higher.

(e) Evaluation of Volk lenses. Dr. Ogle considered them superior to biconvex lenses and Dr. Lebensohn was impressed with their value as a screening test to determine the minimum magnification necessary.

5. Subcommittee on Research in Visual Acuity in Myopia. The question of further research on this subject and the effect of contact lenses in myopia was discussed and the matter was referred to Dr. Berens for further study.

6. Subcommittee on Review of Lighting Standards. Dr. Blackwell gave a comprehensive report on recommended levels of illumination. The Subcommittee will study his recommendations and report concerning possible changes in the standards approved by the American Committee.

7. The Subcommittees on Standardization of Ophthalmic Lenses, on Standardization of Terminology of Motor Anomalies, and on Traffic Safety reported progress and were continued.

Your Committee respectfully recommends (1) that the American Academy of Ophthalmology and Otolaryngology continue its sponsorship and financial support to the American Committee on Optics and Visual Physiology; (2) that Dr. Conrad Berens continue to serve as chairman and Dr. Gerald Fonda as secretary-treasurer.

REPORT ON THE AMERICAN ORTHOPTIC COUNCIL

PHILIP KNAPP, M.D.
JOHN W. HENDERSON, M.D.
FRANK D. COSTENBADER, M.D.
Academy Representatives

The twenty-fourth meeting of the American Orthoptic Council was held in Chicago on October 11, 1958, Dr. William E. Krewson, III, President, presiding. During the year the American Academy of Ophthalmology and Otolaryngology was represented by Dr. Philip Knapp, Dr. John W. Henderson, and Dr. Frank D. Costenbader. Dr. Knapp was elected President of the Council for the year 1959. Dr. Henderson serves as Chairman of the Council's Instruction Committee and is a member of the Nominating Committee. Dr. Costenbader continued as Chairman of the Examinations Committee and is Chairman, also, of the Special Committee on Title and Function.

The significant activities of the American Orthoptic Council for the year 1958-1959 have been:

1. The annual two months basic course in orthoptics for orthoptic technicians was held in Ann Arbor, Michigan, during the summer of 1959 under the direction of Dr. John W. Henderson. There was an enrollment of thirteen students.

2. The annual examination of orthoptic technician candidates was conducted by the Council on Saturday, October 11, 1958, in Chicago, Illinois. Twenty-six candidates took the examinations, of whom twenty-three made a passing grade and were certified by the Council.

3. The annual scientific meeting sponsored jointly by the American Orthoptic Council and the American Association of Orthoptic

Technicians, in conjunction with the meeting of the American Academy of Ophthalmology and Otolaryngology, was held on Sunday, October 12, 1958. The meeting this year took the form of a symposium on "Office Orthoptics by the Ophthalmologist." This symposium was published in the American Orthoptic Journal.

The 1959 meeting is scheduled for Sunday evening, October 11, 1959, and will take the form of a symposium on Pleoptics in the Treatment of Amblyopia.

4. The American Association of Orthoptic Technicians continues to hold its annual scientific meeting in conjunction with the scientific meeting of the American Academy of Ophthalmology and Otolaryngology. These meetings are always well attended. The American Orthoptic Council continues to assist in providing courses for orthoptic technicians at the time of this meeting. In addition, the American Association of Orthoptic Technicians held sectional meetings in the spring of 1959 at Indianapolis, Indiana; Spokane, Washington; Las Vegas, Nevada; Little Rock, Arkansas; and Portland, Maine. All of these were well attended, indicating a continuing interest in postgraduate study by technicians.

5. The American Association of Orthoptic Technicians with the assistance of the American Orthoptic Council sponsored exhibits dealing with various phases of orthoptics at several national meetings during the year.

6. The ninth volume of the American Orthoptic Journal, edited by Dr. Webb P. Chamberlin, Jr., has been distributed to all members of the American Association of Orthoptic Technicians and to all ophthalmologists who have indicated a desire to receive it. The Journal is published through the cooperation of the American Academy of Ophthalmology and Otolaryngology and is distributed through its TRANSACTIONS.

7. The Secretary of the Council prepared an editorial entitled, "The Present Status of Orthoptic Practice," which appeared in 1958 in the American Journal of Ophthalmology.

8. The Lancaster Award was given this year to Mrs. Elsie Laughlin, Iowa City, Iowa.

9. Officers elected to serve in 1959 are:

President: Philip Knapp, M.D., New York

Vice-President: Frank D. Costenbader, M.D., Washington, D. C.

Secretary-Treasurer: Edmond L. Cooper, M.D., Detroit

The American Orthoptic Council appreciates the continued interest and support of the American Academy of Ophthalmology and Otolaryngology.

Your representatives respectfully recommend:

1. That the American Academy of Ophthalmology and Otolaryngology continue to sponsor the American Orthoptic Council and that it appoint Dr. Philip Knapp of New York City for a period of three years beginning January 1, 1960.

2. That the American Academy of Ophthalmology and Otolaryngology support the American Orthoptic Council in the amount of two hundred dollars ($200.00) for the year 1959-1960.

REPORT ON AMERICAN STANDARDS ASSOCIATION, ACOUSTICAL STANDARDS BOARD

EDMUND P. FOWLER, JR., M.D.
Academy Representative

At this date the Acoustical Standards Boards have made no new official changes in the standards, although several writing groups are busy in the S-3 division which is responsible for bio-acoustics for the American Standards Association. Further preliminary talks were carried out informally with the International Standards groups in Europe, and it is probable that the difference between their standard and the American Standard zero reference level for audiometers will be ironed out. The recommendation of the American Otological Society and the American Laryngological, Rhinological and Otological Society, as well as our own Conservation of Hearing Committee, has been that any adjustments that are to be made should be in the order of 10 decibels so that a changeover to an international standard will be easy arithmetically. A suggested standard audiogram form to facilitate this was endorsed by each of these groups and is printed in the 1958 Report of the Committee on Conservation of Hearing.

A new report on terminology by the SW-5 writing group received only five negative votes with twenty-eight "yes" votes. Probably the terminology monograph will be accepted in toto by the end of 1959. Most important from the standpoint of the Academy is the omission of the word "aural" and the substitution of the words "otic" or "auditory" so as to avoid confusion with the word "oral." Whether the entire SW-5 group will accept the recommendations of the various

subcommittees of the Academy Committee on Conservation of Hearing to establish the word "deafness" as meaning a hearing level of 82 decibels or worse remains to be seen. The Writing Group on Audiometers has already accepted the words "hearing threshold level" for the ordinant on the audiogram rather than "hearing loss." There has been some discussion as to the introduction at this time in the official terminology of the word "anacusis" for deafness, "hypoacusis" for hearing loss, and "dysacusis" for dysfunctions in hearing which are not measurable in decibels.

REPORT ON AMERICAN STANDARDS ASSOCIATION, COMMITTEE FOR STANDARDIZATION OF OPHTHALMIC LENSES

CARL J. RUDOLPH, M.D.
Academy Representative

The last meeting of the Lens Standards Committee was in New York City in December 1958, at which time the Optical Manufacturers Association announced that they were willing to set up a testing laboratory and purchase lenses on the open market to test them for lens quality. If any of their members were found guilty of misrepresenting their materials, they would be dealt with accordingly. While this appears to be a step in the right direction, the catch to it is that they are not willing to do this unless other segments of the industry are also policed. This is understandable, as a first quality lens at the manufacturing level can be badly compromised at the dispensing laboratory level.

According to the mailing list of the O.M.A., there are approximately 16,500 optometrists and 9,000 ophthalmologists. On good authority I have learned that ophthalmologists prescribe about one half of all lenses made, also that one half of all lenses made are of less than first quality. Obviously many second quality lenses are going to patients of the ophthalmologists. I am of the impression that very few of them realize this fact.

Insomuch as there is a premium paid to those intermediaries who sell inferior merchandise for the price of first quality, it is scarcely possible that they will subscribe to any policing of themselves. It would be almost impossible for one group or a combination of all interested and honest parties to police all outlets of lens spectacles.

The more knowledge and experience that I accumulate regarding a workable lens standard on a national scale, the more I am convinced that it is a luxury that only the government can afford. I believe Federal legislation for lens standards similar to the Pure Food and Drug Act should be encouraged by our Academy and recommended to the American Medical Association for action and guidance. Policing action then would be made easy, as competitors on a local level would report one another if they were to get far out of line.

Federal Legislation should not be difficult to obtain as we already have obtained the blessing of my friend Lee Burney, the Surgeon General; U. S. Bureau of Standards; Army; Navy; Veterans Administration; Optometry, and many others. The large influential lobbying interests in Congress representing labor unions, farmers and capital could easily see its merits and would hasten to join in support.

REPORT ON THE BOARD OF GOVERNORS OF THE AMERICAN COLLEGE OF SURGEONS

HARRY P. SCHENCK, M.D.
Academy Representative

The specialty representation in the governing bodies of the College has been further augmented by the Board of Regents and the Board of Governors. An ophthalmologist, Dr. Frederick C. Cordes, and an otolaryngologist, Dr. Dean M. Lierle, both Fellows of the American Academy of Ophthalmology, continue to serve as members of the Board of Regents, and a representative of the Academy has been elected to the Executive Committee of the Board of Governors.

Since the annual Congress of the College occurs either during the week before or the week after the meeting of the American Academy of Ophthalmology and Otolaryngology, only token sessions in ophthalmology and otolaryngology have been possible at the Clinical Congress of the College, and the only adequate programs of these two specialties were relegated to the various section meetings of the College. Separate sessions for ophthalmology and otolaryngology were included in five sectional meetings distributed across the United States and Canada in 1959. The total registration at these meetings included 3,605 surgeons and 1,929 nurses. The success of efforts to make the College more

attractive to surgical specialists was reflected in the fact that the Montreal Sectional Meeting had the highest percentage of specialists ever represented in attendance at any major meeting of the College.

Although extensive programs for ophthalmology and otolaryngology will be presented at the Clinical Congress of the College in 1959, it will be impossible to plan programs in the two specialties for the 1960 Congress because of the simultaneous sessions of the American Academy of Ophthalmology and Otolaryngology and of the College. The omission of programs for ophthalmology and otolaryngology in 1960 and in subsequent Clinical Congresses appears to be detrimental to the prestige and influence of the two specialties on a national and international level. Active participation in the programs is especially important since the organization of the International Federation of Surgical Colleges and Societies, which provides the machinery to elevate the standards of surgery throughout the world on a truly international level. For these reasons, it appears imperative that the American Academy of Ophthalmology and Otolaryngology and of the College devise plans to eliminate future coincidence of these extremely important annual meetings.

The Graduate Training Committee has recommended a program of education, both public and professional, of extended duration and probably employing the lay press, to encourage the idea that patients holding certain types of insurance might be operated upon by residents.

The Board of Governors engaged in a re-evaluation of current training programs to ensure support by the profession and the laity, care superior to ordinary standards, adapted to social and economic trends, and any improvements to be readily combinable with, or easily established in place of existing programs. In connection with the problem of training for residents in the surgical specialties, a questionnaire was developed and distributed to the chief of each approved residency in general surgery and the surgical specialties, so designed as to provide information about the current situation and to obtain some idea of what these educators feel to be desirable. The results of the questionnaire will be the basis for a panel discussion at the symposium for graduate training at the Clinical Congress in September 1959.

REPORT OF THE JOINT COMMITTEE ON EYE BANKS

JOHN HARRY KING, M.D., Secretary

The joint committee on Eye Banks held its fourth meeting at Hot Spring, Virginia, on May 29, 1959. Present were: Alson E. Braley, M.D.; F. Phinizy Calhoun, Jr., M.D.; Ramon Castroviejo, M.D.; John Harry King, Jr., M.D.; Alfred E. Maumenee, M.D.; R. Townley Paton, M.D.; A. D. Ruedemann, Sr., M.D. Absent: Michael J. Hogan, M.D.

The meeting was called to order by the Chairman, Dr. Paton. The minutes of the last meeting held at White Sulphur Springs, West Virginia, on May 30, 1958, were read by the secretary and were approved by the committee.

Dr. Paton discussed the original organization of the New York Eye Bank, noting the problems involved, and stated the need for better national organization and control of independent eye banks from the medical standpoints. He outlined the current medical problems with eye banks, stating that publicity was often unfavorable from medical aspects and that morticians were even recommending that they perform enucleations for eye banks. Dr. Paton discussed donor material, contamination and infection, the methods of collecting donor eyes and the need for standardization of eye bank procedures.

Dr. Braley noted the need for a method of reporting available eyes and queried the committee concerning the formation of a "clearing house" in a central area such as Chicago. It was the consensus that this was premature and should be considered later after better basic organizational procedures had been established.

The committee discussed the urgent need for some type of organization which could advise and aid eye banks to operate upon an ethical plane and which could receive *medical* advice from the Joint Committee. It was agreed that The National Eye Bank, New York City, was a model eye bank, most capable of establishing such an eye bank system on a national scale. Dr. Paton was commended for his original and dedicated work in this direction. It was the consensus, however, that such an organization should be under the direction of an ophthalmological society to attain adequate effect.

Dr. Ruedemann made a motion that the Committee recommend the creation of an

"American Association of Affiliated Eye Banks." The motion was seconded and carried. Discussion included the facts that the purpose of the association would be to invite ethical eye banks to join in cooperative action, to be governed by a medical Code of Ethics to be recommended by the Joint Committee on Eye Banks. It was further recommended that this organization be officially established under the American Academy of Ophthalmology and Otolaryngology, with its headquarters in Rochester, Minnesota. Suggestions were made that after the Association is established, a meeting be held of all medical and lay directors of eye banks to discuss ethical medical procedures. It was felt that the Joint Committee should later write a brochure to outline the medical standardization of eye bank procedures on enucleations, sterilization, storage, transportation of tissues and other pertinent data.

Each member was given a suggested Code of Ethics by the secretary so that his ideas could be incorporated for final approval at the next meeting.

It was emphasized by the Chairman that the Joint Committee on Eye Banks was created as an informal *medical* advisory committee and was not a policy making group to govern the activities of any eye bank. In the future its activities would concern advice to the "American Association of Affiliated Eye Banks," with medical control by the American Academy of Ophthalmology and Otolaryngology. It was strongly urged that the current medical representaton from the parent medical societies be continued in order to advise in this important work.

REPORT ON THE MEETING OF THE NATIONAL CITIZENS COMMITTEE FOR THE WORLD HEALTH ORGANIZATION

VICTOR A. BYRNES, M.D.
Academy Representative

The National Citizens Committee for the World Health Organization met at the Statler Hotel in Washington, D. C., May 7, 8 and 9, 1959.

A copy of the program is attached to this report. Detailed transcripts will be available in the near future.

The meeting was well run. It consisted of a "warm-up" day in which speakers of national renown emphasized the importance of the problem; then a division into six forums where more detailed discussion of various aspects of the problem were carried out. The final day was spent summarizing the conclusions reached in the forum sessions and in indicating some of the mechanisms which should be utilized to achieve the objectives desired.

RESUME

The slogan of the meeting was "World Health for World Peace."

While it was never specifically stated in these terms, it is now obvious that every American is a citizen not only of his own area, state and nation but of the world. Speed of communication and transportation eliminate the capability of any nation to isolate itself. Americans in their own self interest, if for no other reason, must recognize the requirement for individual active participation in world affairs.

Misery in any form makes people susceptible to improper actions if these actions seem to offer any possibility of relief from misery. Communism exploits misery to achieve its ends and has made many gains by doing so. Misery may be due to poverty, lack of food, intolerable social conditions or poor health. Improvement in any of these conditions can decrease misery, make individuals less susceptible to communist influences and thus improve the world conditions for all peoples of the world. This should be a united attack against all causes of misery, but health was the segment under discussion at this meeting.

Health improvement also has the unique characteristic in that "everybody wins" and increasing health in one country does not subtract something from another country.

Medicine as a science shares in the worldwide esteem in which scientists hold each other. As such it is a real force for international goodwill and cooperation, a real force for peace.

The World Health Organization as a specialized agency of the United Nations serves as the mechanism for international health programs. It was organized in 1946 and is becoming more effective each year. Programs which have already been very effective are those in yaws (which has been eradicated from some of the Caribbean Islands), malaria (which has been reduced to half of the cases prevalent only a few years ago), tuberculosis, yellow fever, leprosy, trachoma and smallpox.

In return for our health efforts we benefit (1) by protection of our own health by eradication of disease which would be readily transmitted to us from foreign countries, (2) by learning more about disease, as well as, (3) by the improvement in world relationships.

Participation by government agencies is not enough. Private agencies and industry can be more effective in many medical areas.

Representative Walter Judd of Minnesota gave an address on "The American Image Abroad." It was one of the finest talks it has been my privilege to hear anywhere. If an occasion arises requiring a banquet speaker for a medical group, this speaker and this talk would be an excellent choice.

FORUM 1

Forum 1 on "Health and the American Image Abroad" was reported by Dr. Leonard Larson of the American Medical Association. The essential recommendations of this group were:

Health programs are good vehicles to create a favorable impression of America abroad.

The promotional and employee policies of American industrial concerns abroad are important.

"Care," "Medico," U. S. Public Health Service programs abroad, training courses given abroad by Armed Forces medical personnel, and other activities of medical organizations are important.

Selection and briefing of people to serve abroad is important. We need people who speak the language, better teachers, no superior attitude, and the ability to accept conditions as they find them.

FORUM 2

Forum 2 on "An International Health Year" was reported by Dr. J. E. Perkins. It was recommended that the International Health Year being proposed by W.H.O. be adopted for 1961. That each country participate to the maximum extent it desires. That medical organizations participate to the fullest and that they be joined by the other life sciences. Support will also be required from all the other allied branches of the United Nations. Specific programs to be undertaken were mentioned and can be found in the complete report. It was suggested that the I.H.Y. be closed with a climatic congress to be held in the vicinity of the World Health Assembly.

FORUM 3

Forum 3 on "International Medical Research Cooperation" was reported by Dr. R. Keith Cannan of the National Academy of Sciences. His group gave enthusiastic support to the Hill-Fogarty bill for an Institute for International Medical Research in the structure of the National Institutes of Health. Such an institute was believed capable of increasing world facilities and training in research.

FORUM 4

Forum 4, "Health and Economic Development" was reported by Mr. James E. Grant. He pointed out that health is required in underdeveloped countries to increase human resources. Improved health always produces an increased demand for education and other benefits. Eradication of diseases, such as malaria, open up for use large areas of the world largely unpopulated. The island of Ceylon is a good recent example. Priorities in eradication programs will be required and will be different in different areas. The health program must be coordinated with education, agriculture and industry to achieve maximum health benefit. The use of local counterpart funds for this program must be assessed carefully, since local inflation can be produced by unwise handling. As of 30 June 1958 United States owned about 1 billion dollars worth of "counterpart" funds.

FORUM 5

Forum 5 on "Programs and Problems" was reported by Dr. Ira V. Hiscock. He pointed out that personnel need a prolonged tour in the countries involved if their advice is to be useful. They need to know the language. We need balanced programs in training so that subprofessional types are available to assist professionally trained people. Funds are needed to pay teachers.

FORUM 6

Forum 6 on "Health and Population Dynamics" was reported by Dr. M. C. Balfour. This group had the courage to point out the health threat of the "exploding" world population. There are now 2 billion 700 million people. Many predict a population of 7 billion by the year 2000. This presents a problem not only of availability of food but of much reduced per capita income. Study of this problem was recommended in the hope that some acceptable measure for the control of populations could be developed under W.H.O. sponsorship.

RECOMMENDATIONS

After careful consideration of the three-day meeting I believe that the American Academy of Ophthalmology and Otolaryngology should do the following things:

1. Develop its position on
   a. An International Health Year
   b. An Institute for International Medical Research within the National Institutes of Health.
2. Its desire to participate in International Health Programs involving ophthalmology and otolaryngology. If participation is the course selected, then the mechanism whereby its contribution could be made should be determined. Bringing up the matter before the Pan-American Ophthalmological Society and other International Eye and ENT societies might be considered.
3. If the Academy is not currently a sustaining member of the National Citizens Committee for the World Health Organization, some consideration should be given to the desirability of becoming such a member.
4. When the opportunity presents itself, ophthalmologists and otolaryngologists should probably be reminded of the fact that they are world citizens whether they like it or not and that they must assume the responsibilities of such citizenship.

REPORT ON THE NATIONAL COMMITTEE FOR RESEARCH IN OPHTHALMOLOGY AND BLINDNESS

BERNARD BECKER, M.D.
A. EDWARD MAUMENEE, M.D.
Academy Representatives

The National Committee for Research in Ophthalmology and Blindness was organized in 1956 at the suggestion of an ad hoc committee appointed by the four national ophthalmic societies. Its financial support has been derived from contributions from those societies and from a number of lay organizations participating in this field. The helpful assistance of the American Academy of Ophthalmology and Otolaryngology and the Association for Research in Ophthalmology in providing the initial organizational funds and support thereafter is gratefully acknowledged.

The National Committee for Research in Ophthalmology and Blindness is currently operating in the following areas:

1. As a forum for the exchange of information between medical and lay groups.

2. As a personnel exchange for professional and technical personnel in ophthalmology.

3. In providing information concerning the source of support for research in ophthalmology and blindness. At the annual meeting on June 2, 1959, approval was granted for preparation of a brochure for wide distribution of this information and defining the areas in which research in ophthalmology and blindness may prove profitable. It is anticipated that this will be couched in very general terms, indicating the general areas and needs for research. It is hoped that this will be particularly valuable in defining to laymen and lay groups what may be anticipated by devoting their resources to ophthalmology.

4. Acting as consultant to various local, state and federal organizations and lay persons in questions concerning ophthalmic research. A number of lay organizations channel inquiries concerning aspects of medical research and ophthalmology to the Committee.

The chief value of the Committee thus far appears to be in bringing lay and medical groups together with ethical sponsorship and providing lay organizations with evidence that organized medicine is interested in their activities and in the support of research.

The representatives of the American Academy of Ophthalmology and Otolaryngology to this committee have attended all meetings of the committee. It is requested that the American Academy of Ophthalmology and Otolaryngology continue to be represented on the committee and that the sum of $500 be appropriated to the support of the committee.

REPORT ON THE NATIONAL CONGRESS OF PARENTS AND TEACHERS

FRANK D. COSTENBADER, M.D.
Academy Representative

Your representative has attended one national meeting during the past year, on January 10, 1959, in Chicago. At this meeting of the Advisory Committee on Health Supervision, thirty-five representatives of all phases of health and education met to consider the Congress' future program. It was the consensus of the meeting that the emphasis in parent-teacher activity should be changed from the so-called "summer round-up," which has been a major activity of the

Parent-Teacher Association for a number of years, to continuous health supervision, and this from birth through the school ages.

In justification of this redirection, it was emphasized that the Congress of Parents and Teachers was interested in doing a continuing job of educating children and parents in health matters, and in aiding children to obtain continuous supervision by their own physician and dentist, the appropriate clinic, or the appropriate health officer, depending upon the social and financial status of the particular child.

While the discussion was not immediately applicable to ophthalmology or otolaryngology, I, as your representative, felt that in principle this change in emphasis was good, and supported it.

REPORT ON U. S. DEPARTMENT OF HEALTH, EDUCATION AND WELFARE: SECRETARY'S MEETING WITH REPRESENTATIVES OF NATIONAL ORGANIZATIONS

VICTOR A. BYRNES, M.D.
Academy Representative

As the representative of the American Academy of Ophthalmology and Otolaryngology, at your invitation I attended a meeting at the Department of Health, Education and Welfare here in Washington on 10 December 1958. This was the meeting of which Secretary Flemming advised you and to which representatives of national health organizations had been invited. It was the second such meeting in a series of three.

The primary purposes of this series of meetings was to elicit views and comments in three general areas:

1. To help HEW identify health problems and areas of unmet needs;
2. To recommend what actions HEW might take to meet these needs;
3. To explore the best possible ways in which National Organizations and HEW can work together to fill these needs.

Attached hereto are the meeting agenda, the list of participating personnel and the list of participating organizations.

After the initial remarks by Secretary Flemming, Dr. Burney and Dr. Bain, we adjourned to three informal discussion groups. We reconvened as a single group in the afternoon for the final reports by the chairmen of three individual groups.

Secretary Flemming assured the group that the Department would "react" to every suggestion. None would be ignored. After listening to some of them, they could perhaps be ignored without great loss to the country.

In our discussion group much time was devoted to discussion of the coming acute physician shortage. The requirement for new medical schools received some comment. Much more comment was devoted to the decreasing popularity of medicine as a career, reasons for it and suggested remedies: popularizing the Federal Student Loan Program, student summer fellowships for premedical students, devotion of more attention to outstanding students in high school and early college. My only comment of the meeting was given at this point. It concerns the deplorable attitude of many university professors in the liberal arts and social sciences field toward the medical profession. The remarks being made in the premedical college period by many instructors will dissuade all but a hardy and determined student from electing a medical career. I feel that the medical profession has a very badly neglected public relations problem in this and many other areas. The practice of medicine will suffer even more if the present neglect is not corrected.

Another item which was discussed at length is the difficulty of research people in finding out "who is doing what" in their chosen fields. No solution was offered but attention was invited to the biosciences information exchange operated by the National Science Foundation. This latter covers all research (except classified research) being performed under various research grants.

The various voluntary health organizations were voluble on points which they believed had an effect on their organizations. Notable in this respect were members of the National Medical Association who were concerned about certain educational problems in some states, the National Council on Alcoholism, the United Epilepsy Association and National Cystic Fibrosis Research Foundation.

The effect of the research grants program on the medical education picture was again discussed by several individuals. This is, as you know, an extremely important problem in the country at this time.

When the study groups reconvened, the above-mentioned points were mentioned by

Dr. Hiscock, the group chairman. In addition he pointed out the lack of adequate data on the incidence of various diseases and disabilities in this country. The National Health Survey will help to correct this condition however. He also emphasized the short supply of good medical teaching talent and the possible use of T.V. and other teaching media to stimulate more interest in medicine as a career.

Miss Olson, the leader of Group II, made many of the same points and especially emphasized the requirement for better science teachers and materials at all levels of education. She pointed out that the President has directed the National Science Foundation to set up a National Science Dissemination Service, as recommended by Dr. Killian. Information on this is available by writing Mr. Haggerty at the White House.

The gap between what is known and what is applied was again stressed. Better utilization of the results of research is needed.

Mr. Ryan reported for Group III. That group felt more research was needed on the antecedents and residual effects of disease on families, especially alcoholism and similar conditions. His group also believed more geriatric information is needed.

Nutrition and toxicity are still problems. The establishment of proper tolerance levels for such food contaminants as insecticides and coloring matters is required.

Centralized information on the programs of the National Volunteer Health Organizations is needed.

People individually need more information on facilities available for health care in their local communities.

He also emphasized other points made by previous speakers.

There was some additional general discussion and closing remarks which produced no essential new or modified ideas.

PAST OFFICERS OF THE ACADEMY

Date	President	First Vice-President	Treasurer	Secretary	Meeting Place
1896—	Adolph Alt St. Louis, Mo.	W. C. Pipino Des Moines, Iowa	W. L. Dayton Lincoln, Neb.	Hal Foster Kansas City, Mo.	Kansas City, Mo.
1897—	Adolph Alt St. Louis, Mo.	W. C. Pipino Des Moines, Iowa	W. L. Dayton Lincoln, Neb.	Hal Foster Kansas City, Mo.	St. Louis
1898—	B. E. Fryer Kansas City, Mo.	J. E. Colburn Chicago, Ill.	W. L. Dayton Lincoln, Neb.	Hal Foster Kansas City, Mo.	Chicago
1899—	J. E. Colburn Chicago, Ill.	W. Scheppegrell St. Louis, Mo.	W. L. Dayton Lincoln, Neb.	Thomas A. Woodruff Chicago, Ill.	New Orleans
1900—	W. Scheppegrell St. Louis, Mo.	M. A. Goldstein St. Louis, Mo.	W. L. Dayton Lincoln, Neb.	Fayette C. Ewing St. Louis, Mo.	St. Louis
1901—	M. A. Goldstein St. Louis, Mo.	H. W. Wurdemann Milwaukee, Wis.	W. L. Dayton Lincoln, Neb.	W. L. Ballenger Chicago, Ill.	Cincinnati
1902—	C. R. Holmes Cincinnati, Ohio	W. L. Dayton Lincoln, Neb.	Otto Stein Chicago, Ill.	W. L. Ballenger Chicago, Ill.	Chicago
1903—	W. L. Ballenger Chicago, Ill.	C. J. Stillson Indianapolis, Ind.	Otto Stein Chicago, Ill.	Derrick Vail Cincinnati, Ohio	Indianapolis
1904—	Edward Jackson Denver, Colo.	Dudley Reynolds Louisville, Ky.	Otto Stein Chicago, Ill.	Derrick Vail Cincinnati, Ohio	Denver
1905—	Hanau Loeb St. Louis, Mo.	Derrick Vail Cincinnati, Ohio	Otto Stein Chicago, Ill.	George F. Suker Chicago, Ill.	Buffalo
1906—	Casey Wood Chicago, Ill.	J. A. Stucky Lexington, Ky.	Otto Stein Chicago, Ill.	George F. Suker Chicago, Ill	St. Clair, Mich.

PAST OFFICERS OF THE ACADEMY

Date	President	First Vice-President	Treasurer	Secretary	Meeting Place
1907—	J. A. Stucky Lexington, Ky.	R. A. Reeve Toronto, Canada	Otto Stein Chicago, Ill.	George F. Suker Chicago, Ill.	Louisville
1908—	Derrick Vail Cincinnati, Ohio	Joseph Beck Chicago, Ill.	Otto Stein Chicago, Ill.	George F. Suker Chicago, Ill.	Cleveland
1909—	Otto Stein Chicago, Ill.	Percy Fridenberg New York, N. Y.	S. H. Large Cleveland, Ohio	George F. Suker Chicago, Ill.	New York
1910—	Wendell Reber Philadelphia, Pa.	L. B. Lockhard Denver, Colo.	S. H. Large Cleveland, Ohio	George F. Suker Chicago, Ill.	Cincinnati
1911—	J. J. Kyle Indianapolis, Ind.	F. Parke Lewis Buffalo, N. Y.	S. H. Large Cleveland, Ohio	George F. Suker Chicago, Ill.	Indianapolis
1912—	George F. Suker Chicago, Ill.	J. W. Murphy Cincinnati, Ohio	S. H. Large Cleveland, Ohio	L. M. Francis Buffalo, N. Y.	Niagara Falls, Ont.
1913—	J. W. Murphy Cincinnati, Ohio	J. O. McReynolds Dallas, Texas	S. H. Large Cleveland, Ohio	L. M. Francis Buffalo, N. Y.	Chattanooga
1914—	J. M. Ray Louisville, Ky.	J. M. Ingersoll Cleveland, Ohio	S. H. Large Cleveland, Ohio	L. M. Francis Buffalo, N. Y.	Boston
1915—	Joseph Beck Chicago, Ill.	Robert S. Lamb Washington, D. C.	S. H. Large Cleveland, Ohio	L. M. Francis Buffalo, N. Y.	Chicago
1916—	J. E. Brown Columbus, Ohio	T. E. Carmody Denver, Colo.	S. H. Large Cleveland, Ohio	L. M. Francis Buffalo, N. Y.	Memphis
1917—	W. L. Dayton Lincoln, Neb.	Edward Stieren Pittsburgh, Pa.	S. H. Large Cleveland, Ohio	L. M. Francis Buffalo, N. Y.	Pittsburgh
1918—	Allen Greenwood Boston, Mass.	Virginius Dabney Washington, D. C.	S. H. Large Cleveland, Ohio	L. M. Francis Buffalo, N. Y.	Denver

PAST OFFICERS OF THE ACADEMY

Date	President	First Vice-President	Treasurer	Secretary	Meeting Place
1919—	J. M. Ingersoll Cleveland, Ohio	Melville M. Black Denver, Colo.	S. H. Large Cleveland, Ohio	Luther C. Peter Philadelphia, Pa.	Cleveland
1920—	L. M. Francis Buffalo, N. Y.	Hal Foster Kansas City, Mo.	S. H. Large Cleveland, Ohio	Luther C. Peter Philadelphia, Pa.	Kansas City, Mo.
1921—	Emil Mayer New York, N. Y.	John R. Newcomb Indianapolis, Ind.	S. H. Large Cleveland, Ohio	Luther C. Peter Philadelphia, Pa.	Philadelphia
1922—	Walter R. Parker Detroit, Mich.	Ross H. Skillern Philadelphia, Pa.	S. H. Large Cleveland, Ohio	Luther C. Peter Philadelphia, Pa.	Minneapolis and St. Paul
1923—	T. E. Carmody Denver, Colo.	Hunter H. McGuire Winchester, Va.	S. H. Large Cleveland, Ohio	Luther C. Peter Philadelphia, Pa.	Washington, D. C.
1924—	W. B. Lancaster Boston, Mass.	William P. Wherry Omaha, Neb.	S. H. Large Cleveland, Ohio	Luther C. Peter Philadelphia, Pa.	Montreal
1925—	Horace Newhart Minneapolis, Minn.	John M. Wheeler New York, N. Y.	S. H. Large Cleveland, Ohio	Luther C. Peter Philadelphia, Pa.	Chicago
1926—	E. C. Ellett Memphis, Tenn.	Austin A. Hayden Chicago, Ill.	S. H. Large Cleveland, Ohio	Luther C. Peter Philadelphia, Pa.	Colorado Springs
1927—	Ross Hall Skillern Philadelphia, Pa.	H. W. Woodruff Joliet, Ill.	S. H. Large Cleveland, Ohio	William P. Wherry Omaha, Neb.	Detroit
1928—	Luther C. Peter Philadelphia, Pa.	Frank L. Dennis Colorado Springs, Colo.	S. H. Large Cleveland, Ohio	William P. Wherry Omaha, Neb.	St. Louis
1929—	Harris P. Mosher Boston, Mass.	Frank E. Burch St. Paul, Minn.	S. H. Large Cleveland, Ohio	William P. Wherry Omaha, Neb.	Atlantic City
1930—	William H. Wilder Chicago, Ill.	Frank R. Spencer Boulder, Colo.	S. H. Large Cleveland, Ohio	William P. Wherry Omaha, Neb.	Chicago

PAST OFFICERS OF THE ACADEMY

Date	President	First Vice-President	Ex. Sec'y-Treas.	Comptroller	Meeting Place
1931	John F. Barnhill Miami Beach, Fla.	Meyer Wiener Coronado, Calif.	William P. Wherry Omaha, Neb.	S. H. Large Cleveland, Ohio	French Lick, Ind.
1932	S. Hanford McKee Montreal, Canada	Gordon B. New Rochester, Minn.	William P. Wherry Omaha, Neb.	S. H. Large Cleveland, Ohio	Montreal
1933	Burt R. Shurly Detroit, Mich.	Nelson Miles Black Miami, Fla.	William P. Wherry Omaha, Neb.	S. H. Large Cleveland, Ohio	Boston
1934	John M. Wheeler New York, N. Y.	LeRoy A. Schall Boston, Mass.	William P. Wherry Omaha, Neb.	S. H. Large Cleveland, Ohio	Chicago
1935	Wells P. Eagleton Newark, N. J.	W. Thornwall Davis Washington, D. C.	William P. Wherry Omaha, Neb.	S. H. Large Cleveland, Ohio	Cincinnati
1936	Frank E. Burch St. Paul, Minn.	Gordon F. Harkness Davenport, Iowa	William P. Wherry Omaha, Neb.	S. H. Large Cleveland, Ohio	New York
1937	Lee W. Dean St. Louis, Mo.	Bernard Samuels New York, N. Y.	William P. Wherry Omaha, Neb.	S. H. Large Cleveland, Ohio	Chicago
1938	Harry S. Gradle Chicago, Ill.	E. M. Seydell Wichita, Kan.	William P. Wherry Omaha, Neb.	S. H. Large Cleveland, Ohio	Washington, D. C.
1939	George M. Coates Philadelphia, Pa.	William W. Pearson Des Moines, Iowa	William P. Wherry Omaha, Neb.	S. H. Large Cleveland, Ohio	Chicago
1940	Frank E. Brawley Chicago, Ill.	Arthur W. Proetz St. Louis, Mo.	William P. Wherry Omaha, Neb.	S. H. Large Cleveland, Ohio	Cleveland
1941	Frank R. Spencer Boulder, Colo.	Everett L. Goar Houston, Texas	William P. Wherry Omaha, Neb.	S. H. Large Cleveland, Ohio	Chicago
1942	Ralph I. Lloyd Brooklyn, N. Y.	Walter H. Theobald Chicago, Ill.	William L. Benedict Rochester, Minn.	S. H. Large Cleveland, Ohio	Chicago
1943	James A. Babbitt Philadelphia, Pa.	Sanford R. Gifford Chicago, Ill.	William L. Benedict Rochester, Minn.	S. H. Large Cleveland, Ohio	Chicago

PAST OFFICERS OF THE ACADEMY

Date	President	First Vice-President	Ex. Sec'y-Treas.	Meeting Place
1944—	Lawrence T. Post St. Louis, Mo.	C. Stewart Nash Rochester, N. Y.	William L. Benedict Rochester, Minn.	Chicago
1945—	Gordon B. New Rochester, Minn.	Edmund B. Spaeth Philadelphia, Pa.	William L. Benedict Rochester, Minn.	Meeting Cancelled
1946—	Gordon B. New Rochester, Minn.	Edmund B. Spaeth Philadelphia, Pa.	William L. Benedict Rochester, Minn.	Chicago
1947—	Alan C. Woods Baltimore, Md.	Arthur C. Jones Boise, Idaho	William L. Benedict Rochester, Minn.	Chicago
1948—	Carl H. McCaskey Indianapolis, Ind.	Ralph O. Rychener Memphis, Tenn.	William L. Benedict Rochester, Minn.	Chicago
1949—	Conrad Berens New York, N. Y.	Fred W. Dixon Cleveland, Ohio	William L. Benedict Rochester, Minn.	Chicago
1950—	J. Mackenzie Brown Los Angeles, Calif.	Edwin B. Dunphy Boston, Mass.	William L. Benedict Rochester, Minn.	Chicago
1951—	Derrick Vail Chicago, Ill.	Francis E. LeJeune New Orleans, La.	William L. Benedict Rochester, Minn.	Chicago
1952—	James Milton Robb Detroit, Mich.	Georgiana Dvorak Theobald Oak Park, Ill.	William L. Benedict Rochester, Minn.	Chicago
1953—	Frederick C. Cordes San Francisco, Calif.	Thomas C. Galloway Evanston, Ill.	William L. Benedict Rochester, Minn.	Chicago
1954—	Walter H. Theobald Chicago, Ill.	Francis Heed Adler Philadelphia, Pa.	William L. Benedict Rochester, Minn.	New York

PAST OFFICERS OF THE ACADEMY

Date	President	First Vice-President	Ex. Sec'y-Treas.	Meeting Place
1955—	Algernon B. Reese New York, N. Y.	Philip E. Meltzer Boston, Mass.	William L. Benedict Rochester, Minn.	Chicago
1956—	A. C. Furstenberg Ann Arbor, Mich.	M. Hayward Post St. Louis, Mo.	William L. Benedict Rochester, Minn.	Chicago
1957—	Erling W. Hansen Minneapolis, Minn.	Louis H. Clerf St. Petersburg, Fla.	William L. Benedict Rochester, Minn.	Chicago
1958—	LeRoy A. Schall Boston, Mass.	F. Bruce Fralick Ann Arbor, Mich.	William L. Benedict Rochester, Minn.	Chicago
1959—	John H. Dunnington New York, N. Y.	Gordon D. Hoople Syracuse, N. Y.	William L. Benedict Rochester, Minn.	Chicago

American Academy of Ophthalmology and Otolaryngology

Convention Attendance October 11-16, 1959

STATE	MEMBERSHIP AS OF 1-15-59	FELLOWS	GUESTS	RESIDENTS	CANDIDATES	ORTHOPTIC TECHNICIANS	TOTAL
Alabama	64	26	10	5	3	1	45
Alaska	3	2	2	—	—	—	4
Arizona	41	8	6	—	1	—	15
Arkansas	28	10	6	—	—	1	17
California	826	205	41	7	4	9	266
Colorado	92	40	11	5	—	3	59
Connecticut	109	37	11	1	—	3	52
Delaware	14	6	3	—	—	—	9
Dist. of Columbia	94	36	12	5	—	4	57
Florida	182	65	23	2	2	5	97
Georgia	78	35	14	2	4	5	60
Hawaii	20	4	3	—	—	—	7
Idaho	18	4	2	—	—	—	6
Illinois	386	304	250	123	14	9	700
Indiana	137	95	44	9	2	4	154
Iowa	85	54	19	16	3	3	95
Kansas	67	33	12	2	—	—	47
Kentucky	73	44	18	2	4	—	68
Louisiana	89	42	12	7	3	—	64
Maine	35	10	1	—	—	1	12
Maryland	87	41	21	10	5	3	80
Massachusetts	216	54	12	3	5	2	76
Michigan	239	148	78	37	8	13	284
Minnesota	141	77	17	9	2	3	108
Mississippi	39	11	6	2	—	1	20
Missouri	168	77	28	31	5	5	146
Montana	20	9	4	—	—	1	14
Nebraska	48	28	13	1	1	1	44
Nevada	13	1	—	—	—	—	1
New Hampshire	18	8	2	1	—	—	11
New Jersey	223	78	18	4	5	2	107
New Mexico	17	7	2	—	—	—	9
New York	928	280	77	34	8	19	418
North Carolina	86	37	12	6	1	1	57
North Dakota	19	9	3	—	1	1	14
Ohio	350	187	60	20	4	11	282
Oklahoma	47	18	5	2	1	1	27
Oregon	73	26	7	—	—	2	35
Pennsylvania	501	211	44	12	15	8	290
Rhode Island	23	7	2	1	2	—	12
South Carolina	47	18	3	—	2	—	23
South Dakota	12	7	1	—	1	—	9
Tennessee	100	54	11	7	3	3	78
Texas	293	128	38	11	2	7	186
Utah	39	13	1	—	—	—	14
Vermont	12	4	1	—	—	—	5
Virginia	95	38	10	6	1	1	56
Washington	99	37	12	—	2	—	51
West Virginia	46	23	7	—	1	—	31
Wisconsin	120	73	26	8	3	8	118
Wyoming	10	2	2	—	—	—	4
U. S. Territories	20	8	3	1	2	—	14
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Foreign	65	12	54	2	1	2	71
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News - - - Notes

THE OPHTHALMOLOGICAL SOCIETY OF THE UNITED KINGDOM

The Annual Congress of the Ophthalmological Society of the United Kingdom will be held at the Royal Society of Medicine, 1 Wimpole Street, London, W.1, on March 31, April 1 and 2, 1960.

The subject for discussion will be "The Problem of the Visually Defective Infant." This will be opened by Mr. Frank W. Law and Dr. Ronald MacKeith. Members who wish to take part in the subsequent discussion are asked to intimate their intention before the opening of the Congress. It is emphasized that no member may speak for more than ten minutes.

There will also be a symposium on "The Management of Hormonal Exophthalmos." The speakers will be Mr. T. Keith Lyle, Mr. H. B. Stallard, Mr. Murray Falconer and Dr. John Lister.

SOCIETY OF MILITARY OPHTHALMOLOGISTS

The Society of Military Ophthalmologists awarded the certificate of Honorary Membership to Edward A. Maumenee, M.D., at its annual meeting in Chicago on October 13, 1959. This award is made periodically to an outstanding ophthalmologist who has contributed to the advance of military ophthalmology.

WILLS EYE HOSPITAL

The Twelfth Annual Clinical Conference of the Staff and Society of Ex-Residents of Wills Eye Hospital will be held on February 18, 19 and 20, 1960. There will be Clinical and Hospital Rounds held on Thursday morning, and special Surgical Clinics in the afternoon. On Thursday evening, February 18, a scientific meeting of the Ophthalmological Section of the Philadelphia College of Physicians will be preceded by dinner. Dr. Levon K. Garron of California will be the guest speaker.

On Friday and Saturday, the scientific program will include individual presentations, color television of surgical procedures, clinical, surgical and research subjects. The Arthur J. Bedell Lecture will be delivered on Saturday morning by Dr. Peter C. Kronfeld of Chicago.

An informal reception will be held on Friday evening, February 19, for all those who attend. The Conference will be concluded by a dinner meeting of the Society of Ex-Residents on Saturday evening.

NEW YORK EYE AND EAR INFIRMARY

The Annual Spring Meeting of the Alumni Association of the New York Eye and Ear Infirmary will take place April 4 to 7, 1960, at the Infirmary.

The entire meeting will be oriented towards pediatric ophthalmology and otolaryngology. There will be a combined EENT symposium on nystagmus as a pediatric problem.

In ophthalmology, symposiums will be offered on "Ocular Complications Attending Infectious Diseases of Childhood"; "Surgical Correction of Congenital Deformities of Eye and Adnexa"; "Glaucoma and Cataracts in Pediatrics"; and "Office Management of the Pediatric Eye Patient."

Symposiums to be offered in Otolaryngology will include "Diagnosis and Rehabilitation of Hearing Problems in Children" and "Ankylosis of the Stapes."

In addition, courses will be given and there will be closed-circuit television demonstrations of surgical procedures in both ophthalmology and otolaryngology.

Additional information may be obtained by writing to Dr. John R. Finlay, Secretary, Alumni Association, 218 Second Avenue, New York 3.

THE AMERICAN SOCIETY OF FACIAL PLASTIC SURGERY

The American Society of Facial Plastic Surgery will meet on December 9, 1959, at the Hotel Elysee, 60 East 54th

Street, New York. The following program has been planned:

"Plastic Surgical Management of Facial Lesions" by Bernard E. Simon, M.D.

"Dermabrasion: A Reappraisal" by Irwin I. Lubowe, M.D.

POSTGRADUATE COURSES

The Temple University School of Medicine and Hospital is offering the following postgraduate courses to be given in 1960:

Postgraduate Course in Laryngology and Laryngeal Surgery April 4 to 15, and September 26 to October 7, 1960. Postgraduate Course in Bronchoesophagology, February 1 to 12, and November 7 to 18, 1960.

These courses are to be given in the Department of Laryngology and Bronchoesophagology, Temple University Medical Center, under the direction of Drs. Chevalier L. Jackson and Charles M. Norris.

The tuition fee for each course is $250. Application and information may be obtained by writing to Jackson-Research, Laboratory 604, Temple University Medical School, 3400 North Broad Street, Philadelphia 40.

POSTGRADUATE COURSES ON AMBLYOPIA

Dr. Curt Cuppers of Giessen, Germany, will give an intensive course on "The Treatment of Amblyopia: Theory, Instrument Demonstration and Practical Application" from March 7 to March 18, 1960. Attendance at this course will be limited to 20 ophthalmologists. Fee, $100.00.

In addition, Dr. Cuppers will give a series of three lectures on "Introduction to the Therapy of Amblyopia by the Help of the After-Image Method" on March 21 to 23, 1960. Fee, $25.00.

For registration, please apply to Mrs. Tamar Weber, Registrar, Institute of Ophthalmology of the Americas, New York Eye and Ear Infirmary, 218 Second Avenue, New York 3.

SPRING POSTGRADUATE COURSES

The Institute of Ophthalmology of the Americas, New York Eye and Ear Infirmary, has announced that the following postgraduate courses will be offered in the Spring of 1960:

1. Ophthalmic Plastic Surgery. Given under the direction of Drs. Wendell L. Hughes, J. Gordon Cole, Byron C. Smith, et al. April 25 to May 14, 1960. Limited to 8. Fee $250.00

2. Histopathology of the Eye. Given under the direction of Drs. Bernard Roberts and Lawrence Samuels. April 25 to 30, 1960. Limited to 15. Fee $100.00

3. Practical Aspects of Perimetry. Given under the direction of Dr. Mortimer Cholst. April 25 to 30, 1960. Limited to 15. Fee $40.00

4. Ocular Surgery. Includes Lacrimal Sac Surgery, Retinal Detachment, Cataracts, Enucleation and Evisceration, Keratectomies and Keratoplasties, Anomalies of Extraocular Muscles, including Ptosis, Glaucoma, and Orbitotomy. May 16 to 21, 1960. Limited to 20. Fee $200.00

For registration, please apply to Mrs. Tamar Weber, Registrar, Institute of Ophthalmology of the Americas, New York Eye and Ear Infirmary, 218 Second Avenue, New York 3.

SCHOLARSHIPS

The Delta Gamma Foundation is again offering Scholarships for training of orthoptic technicians, teachers and consultants for visually handicapped children. The deadline for applications is April 1, 1960. For further information, write Delta Gamma Central Office, 1820 Northwest Boulevard, Columbus 12, Ohio.

UNIVERSITY OF CHICAGO

Dr. Bertha A. Klien has been appointed professor of ophthalmology in the department of surgery of the University of Chicago School of Medicine.

Dr. Lowell T. Coggeshall, dean of the University of Chicago, Division of Biological Sciences, announced the appointment.

Dr. Klien has been associate professor of ophthalmology at the University since 1955. Previously, she was in private practice in Chicago and served as attending physician at Presbyterian Hospital.

Born in Borgo, Austria, Dr. Klien received her degree as Doctor of Medicine in 1925 from the University of Vienna, and served her residency at the Eye Clinic of the University of Vienna.

Dr. Klien is a Fellow of the American Academy of Ophthalmology and Otolaryngology and of Sigma Xi, honorary scientific society. She is one of the editors of Ophthalmologica, a member of the editorial board of the American Journal of Ophthalmology, and an associate editor of the American Medical Association Archives of Ophthalmology.

THE GILL MEMORIAL EYE, EAR AND THROAT HOSPITAL

The Gill Memorial Eye, Ear and Throat Hospital announces its Thirty-Third Annual Spring Congress in Ophthalmology and Otolaryngology, April 4 through April 9, 1960. Guest speakers will include: Leonard Apt, M.D., Philadelphia; William F. Barry, Jr., M.D., Durham, N. C.; Francis B. Catlin, M.D., Baltimore; James E. Crushore, M.D., Detroit; John F. Daly, M.D., New York; Edward A. Dunlap, M.D., New York; John A. Dyer, M.D., Rochester, Minn.; Ben S. Fine, M.D., Washington, D. C.; John R. Heller, M.D., Bethesda, Md.; John W. Henderson, M.D., Ann Arbor, Mich.; William H. Kaufman, M.D., and Alexander McCausland, M.D., Roanoke, Va.; P. Robb McDonald, M.D., Philadelphia; Franklin B. McKechnie, M.D.; Richmond, Va.; Alton Ochsner, M.D., New Orleans; George E. Shambaugh, Jr., M.D., Chicago; Harvey E. Thorpe, M.D., Pittsburgh. For further information write to Superintendent, P. O. Box 1789, Roanoke, Va.

FOREIGN SUBSCRIPTIONS

Some foreign members of the Academy as well as subscribers to the TRANSACTIONS are experiencing difficulty in remitting in American dollars. For their convenience the Academy will accept any legal foreign currency in payment of dues, fees for Home Study Courses, Teachers' Manuals, Orthoptic Journals, TRANSACTIONS, etc., at the prevailing rate of currency exchange.

POSITIONS

POSITION AVAILABLE

The East African Institute for Medical Research, East Africa High Commission, has an opening for an ophthalmologist for research in Nutritional Ophthalmology on an Ophthalmology Research Grant awarded by the U. S. Public Health Service. Salary open. Write Dr. D. S. McLaren, P. O. Box 162, Mwanza, Tanganyika, East Africa.

MEDICAL AND SURGICAL CLINIC

Practice for Sale. Physician engaged in practice of Ophthalmology and Otolaryngology now deceased. Population of city, 50,000; large trade territory; oil, gas, farming, ranching, air base. Cards available. Introductions arranged. Mrs. G. W. Griswold, 215 W. Third Street, Roswell, New Mexico.

PRACTICE FOR SALE

Eye, Ear, Nose & Throat Practice for sale. Situated in Beverly Hills, California. Well established and fully equipped modern office. Exclusive location. Available immediately because of recent death of physician. Terms open. For information, write Mrs. Philip L. Romonek, 405 North Bedford, Beverly Hills, California.

Listings of positions available should be sent to W. L. Benedict, M.D., 15 Second Street S.W., Rochester, Minn., by the fifth of the month preceding publication. They should include (1) type of physician wanted (ophthalmologist or otolaryngologist: diplomate, resident, etc.); (2) type of position to be filled; and (3) whom to write for further information. Unless otherwise requested, listings will be published only once.

The Academy will handle no further correspondence beyond the listing and assume no responsibility. Neither does it endorse nor guarantee any of the published listings.

DIRECTORY OF OPHTHALMIC AND OTOLARYNGIC SOCIETIES

Secretaries of Societies are requested to furnish the information necessary to make this list complete and keep it up to date. Send to TRANSACTIONS, *American Academy of Ophthalmology and Otolaryngology,* 15 *Second St. S.W., Rochester, Minn.*

EXAMINING AND CERTIFYING BODIES

AMERICAN BOARD OF OPHTHALMOLOGY

CHAIRMAN: Dr. Gordon M. Bruce
SECRETARY-TREASURER: Dr. Merrill J. King, Ivie Rd., Box 236, Cape Cottage Branch, Portland 9, Maine
ORAL EXAMINATION: May 1960, San Francisco; October 1960, Chicago.
FINAL DATE FOR APPLICATION TO TAKE 1960 WRITTEN EXAMINATION: July 1, 1959
WRITTEN EXAMINATION: January 1960; various cities

AMERICAN BOARD OF OTOLARYNGOLOGY

PRESIDENT: Dr. Gordon D. Hoople
SECRETARY-TREASURER: Dr. Dean M. Lierle, University Hospitals, Iowa City
FINAL DATE FOR APPLICATION:
ORAL EXAMINATION:

AMERICAN BOARD OF PLASTIC SURGERY

CHAIRMAN: Dr. James T. Mills
SECRETARY-TREASURER: Dr. Bradford Cannon, 330 Dartmouth St., Boston 16
CORRESPONDING SECRETARY: Estelle E. Hillerich, 4647 Pershing Ave., St. Louis 8
FINAL DATE FOR SUBMITTING CASE REPORTS: January 1, 1960
ORAL AND WRITTEN EXAMINATIONS: May 1960, Milwaukee

THE ROYAL COLLEGE OF PHYSICIANS AND SURGEONS OF CANADA

PRESIDENT: Dr. Robert M. Janes
HONORARY SECRETARY: Dr. James H. Graham, 150 Metcalfe St., Ottawa 4, Ont.

INTERNATIONAL

ASIA-PACIFIC ACADEMY OF OPHTHALMOLOGY

PRESIDENT: Dr. Geminiano deOcampo
SECRETARY-GENERAL: Dr. William John Holmes, 280 Young Hotel Bldg., Honolulu 13, Hawaii
TIME AND PLACE: October 10-13, 1960; Manila, Philippines

EUROPEAN OPHTHALMOLOGICAL SOCIETY

PRESIDENT: Dr. J. P. Bailliart
SECRETARY: Prof. Jules Francois, 15 Place de Smet de Naeyer, Ghent, Belgium
TIME AND PLACE: April 1960; Athens, Greece

INTERNATIONAL ASSOCIATION FOR THE PREVENTION OF BLINDNESS

PRESIDENT: Prof. A. Franceschetti
SECRETARY: Dr. J. P. Bailliart, 47 rue de Bellechasse, Paris (7e), France
TIME AND PLACE: December 1962; New Delhi

INTERNATIONAL ASSOCIATION OF SECRETARIES OF OPHTHALMOLOGICAL AND OTOLARYNGOLOGICAL SOCIETIES

PRESIDENT: Dr. Roland H. Myers
SECRETARY: Dr. J. David Stratton, Doctors Bldg., Charlotte, N. C.
TIME AND PLACE: October 11, 1960; Palmer House, Chicago

INTERNATIONAL BRONCHOESOPHAGOLOGICAL SOCIETY

PRESIDENT: Dr. Jo Ono
SECRETARY: Dr. Chevalier L. Jackson, 3401 N. Broad St., Philadelphia 40

INTERNATIONAL COLLEGE OF SURGEONS, SECTION OF OPHTHALMOLOGY AND OTOLARYNGOLOGY

PRESIDENT: Dr. Clarence H. Albaugh
SECRETARY: Dr. Louis Savitt, 3403 Lawrence Ave., Chicago 25

INTERNATIONAL FEDERATION OF OPHTHALMOLOGICAL SOCIETIES

PRESIDENT: Sir Stewart Duke-Elder
SECRETARY: Prof. Dr. Edward Hartmann, 2 ave. Ingres, Paris (16e), France
TIME AND PLACE: December 3 to 7, 1962; New Delhi

INTERNATIONAL ORGANIZATION AGAINST TRACHOMA

PRESIDENT: Prof. G. B. Bietti
SECRETARY-GENERAL: Dr. Jean Sedan, 94 rue Sylvabelle, Marseille (B. du R.), France
TIME AND PLACE: December 1962; New Delhi

PAN-AMERICAN ASSOCIATION OF OPHTHALMOLOGY

PRESIDENT: Dr. Brittain F. Payne
SECRETARY-TREASURER: For North of Panama: Dr. J. Wesley McKinney, 921 Exchange Bldg., Memphis 3, Tenn.
For South of Panama: Dr. Jorge Balza, Azcuenaga 1059, Buenos Aires, Argentina
TIME AND PLACE: January 31-February 7, 1960; Tamanaco Hotel, Caracas, Venezuela

PAN-AMERICAN ASSOCIATION OF OTO-RHINO-LARYNGOLOGY AND BRONCHO-ESOPHAGOLOGY

PRESIDENT: Dr. Paul H. Holinger
SECRETARY: Dr. Chevalier L. Jackson, 3401 N. Broad St., Philadelphia 40
TIME AND PLACE: March 14-17, 1960; Miami

FOREIGN

Argentina

SOCIEDAD ARGENTINA DE OFTALMOLOGIA

PRESIDENT: Dr. Paulina Satanowsky de Neumann
SECRETARY: Dr. Atilio L. Norbis, Santa Fe 1171 Capital Federal
TIME AND PLACE: Third Wednesday of each month; Santa Fé 1171, Buenos Aires

SOCIEDAD de OFTALMOLOGIA de CORDOBA

PRESIDENT: Prof. Dr. Alberto Urrets Zavalia, Jr., Casilla Correo 301, Cordoba, Argentina
SECRETARY: Dr. Claudio Juarez Beltran
SECRETARY-TREASURER: Dr. Luis Mitnik
MEMBERSHIP: Dr. Juan Remonda and Dr. Dante Yadarola

Australia

OPHTHALMOLOGICAL SOCIETY OF AUSTRALIA (B.M.A.)

PRESIDENT: Dr. J. L. R. Carter
SECRETARY: Dr. Peter A. Rogers, 235 Macquarie St., Sydney
TIME AND PLACE: November 9-13, 1959; Hobart, Tasmania

Austria

OSTERREICHISCHE OPHTHALMOLOGISCHE GESELLSCHAFT

PRESIDENT: Prof. Dr. Karl Safar
SECRETARY: Dr. Franz Schwab, I. Univ. Augenklinik, Spitalgasse 2, Wien 9

OSTERREICHISCHE OTO-LARYNGOLOGISCHE GESELLSCHAFT

PRESIDENT: Prof. Dr. Gustav Hofer
SECRETARY: Doz. Dr. Friedrich Neuberger, I. Univ. Ohrenklinik, Alserstr. 4, Vienna 9
TIME: First Tuesday of October to June

OPHTHALMOLOGISCHE GESELLSCHAFT IN WIEN

PRESIDENT: Prof. Dr. K. Safar
SECRETARY: Dr. H. Schenk, I. Univ. Augenklinik, Alserstr. 4, Vienna
TIME: Second Monday—June, October and December

Belgium

SOCIETE BELGE D'OPHTALMOLOGIE

SECRETARY: Prof. Dr. M. Applemans, 179 Boulevard Ruelens, Louvain
TIME AND PLACE: Last Sunday of February, June, and November; Brussels

Brazil

SOCIEDADE BRASILEIRA DE OFTALMOLOGIA

PRESIDENT: Dr. Pedro Moacyr de Aguiar
SECRETARY-GENERAL: Dr. Carlos Heinrique Bessa, Av. Nilo Pecanha 32, Policlínica Geral de Rio de Janeiro

CENTRO DE ESTUDOS DE OFTALMOLOGIA

PRESIDENT: Dr. Rubens Belfort Mattos
SECRETARY: Dr. Renato de Toledo, R. Condessa de S. Joaquim 288, Sao Paulo
TIME AND PLACE: Every Tuesday; R. Condessa de S. Joaquim 288, Sao Paulo

SOCIEDADE DE OFTALMOLOGIA E OTORRINOLARINGOLOGIA DE RIO GRANDE DO SUL

PRESIDENT: Dr. Paulo Fernando Esteves
SECRETARY: Dr. Carlos Buede, Galeria Chaves, Porto Alegre, Rio Grande do Sul
TIME AND PLACE: Third Wednesday of each month; Porto Alegre, Rio Grande do Sul

Canada

CANADIAN MEDICAL ASSOCIATION, SECTION OF OPHTHALMOLOGY

CHAIRMAN: Dr. Edward F. Foy
SECRETARY: Dr. Robert W. Robertson, 305 Northgate Bldg., Edmonton, Alta.

CANADIAN OPHTHALMOLOGICAL SOCIETY

PRESIDENT: Dr. A. Lloyd Morgan
SECRETARY: Dr. R. G. C. Kelly, 90 St. Clair Ave. W., Toronto, Ont.

CANADIAN OTOLARYNGOLOGICAL SOCIETY

PRESIDENT: Dr. Gordon H. Francis
SECRETARY: Dr. Donald M. MacRae, 324 Spring Garden Rd., Halifax, N. S.
TIME AND PLACE: June 10-12, 1960; Jasper National Park, Alta.

THE ROYAL COLLEGE OF PHYSICIANS AND SURGEONS OF CANADA

PRESIDENT: Dr. John Scott
SECRETARY: Dr. James H. Graham, 150 Metcalfe St., Ottawa 4, Ont.

OPHTHALMOLOGICAL AND OTOLARYNGOLOGICAL SOCIETY OF ALBERTA

PRESIDENT: Dr. T. C. Wilson
SECRETARY: Dr. M. R. Marshall, North Pavilion, University Hospital, Edmonton, Alta.
TIME AND PLACE: April 1960; Calgary, Alta.

NOVA SCOTIA SOCIETY OF OPHTHALMOLOGY AND OTOLARYNGOLOGY

PRESIDENT: Dr. L. F. Doiron
SECRETARY: Dr. C. F. Keays, 324 Spring Garden Rd., Halifax, N. S.

THE MONTREAL MEDICO-CHIRURGICAL SOCIETY, SECTION ON OTOLARYNGOLOGY
PRESIDENT: Dr. H. E. McHugh
SECRETARY: Dr. Paul Ittkin, 600 Medical Arts Bldg., Montreal 25, Que.
TIME AND PLACE: November, January, February and April; Teaching Hospitals

MONTREAL OPHTHALMOLOGICAL SOCIETY
PRESIDENT: Dr. R. Cloutier
SECRETARY: Dr. Bruce Ramsey, 1414 rue Drummond, Montreal, Que.

TORONTO ACADEMY OF MEDICINE, SECTION OF OPHTHALMOLOGY
PRESIDENT: Dr. Lois A. Lloyd
SECRETARY: Dr. John W. Hiltz, 741 Bayview Ave., Toronto, Ont.

Chile

SOCIEDAD CHILENA DE OFTALMOLOGIA
PRESIDENT: Dr. Cristóbal Espíldora-Luque
SECRETARY: Dr. José Espíldora-Couso, Agustinas 715, Santiago

Colombia

SOCIEDAD COLOMBIANA DE OFTALMOLOGIA Y OTO-RINO-LARINGOLOGIA
PRESIDENT: Dr. Francisco Vernaza
SECRETARY: Dr. Alberto Jimeno, Carrera 6, No. 35-38, Bogotá
TIME AND PLACE: Monthly; Bogotá

Cuba

SOCIEDAD CUBANA DE OFTALMOLOGIA
PRESIDENT: Dr. Rafael Labrador Ruiz
SECRETARY: Dr. Guillermo de la Torre, Calle G No. 506 Vedado, Havana
TIME AND PLACE: First Thursday bimonthly; Malecon 61 Bajos, Havana

Denmark

DET OFTALMOLOGISKE SELSKAB I KØBENHAVN
PRESIDENT: Dr. Henning Skydsgaard
SECRETARY: Dr. Poul M. Møller, University Eye Clinic, Copenhagen
TIME: April 1960

Egypt

OPHTHALMOLOGICAL SOCIETY OF EGYPT
PRESIDENT: Dr. Ibrahim Ahmed Abboud
SECRETARY: Dr. Sabri Kamel, 44 Opera Sq., Cairo

France

SOCIETE FRANCAISE D'OPHTALMOLOGIE
PRESIDENT: Prof. Guy Offret
SECRETARY: Dr. Gabriel Lombard, 27 rue du Faubourg, St. Jacques, Paris
TIME AND PLACE: Maison de la Chimie, 28 rue Saint Dominique, Paris

Germany

DEUTSCHE OPHTHALMOLOGISCHE GESELLSCHAFT
PRESIDENT: Prof. Karl vom Hofe
SECRETARY: Prof. Karl vom Hofe, Univ. Augenklinik, Köln

Great Britain

BRITISH ASSOCIATION OF OTOLARYNGOLOGISTS
PRESIDENT: Mr. C. Gill-Carey
SECRETARY: Mr. Myles L. Formby, 47 Lincoln's Inn Fields, London, W. C. 2

FACULTY OF OPHTHALMOLOGISTS
PRESIDENT: Mr. E. G. Mackie
SECRETARY: Mr. E. F. King, 47 Lincoln's Inn Fields, London W. C. 2

OPHTHALMOLOGICAL SOCIETY OF THE UNITED KINGDOM
PRESIDENT: Mr. R. C. Davenport
SECRETARIES: Mr. E. C. Glover, 47 Lincoln's Inn Fields, London, W. C. 2
Mr. L. G. Fison, 47 Lincoln's Inn Fields, London, W. C. 2

OXFORD OPHTHALMOLOGICAL CONGRESS
MASTER: Mr. O. M. Duthie
SECRETARY-TREASURER: Mr. Ian C. Fraser, 21 Dogpole, Shrewsbury, Shropshire
TIME AND PLACE: July 11-13, 1960; University Laboratory of Physiology, South Parks Rd., Oxford

THE ROYAL SOCIETY OF MEDICINE, SECTION OF OPHTHALMOLOGY
PRESIDENT: Mr. J. R. Wheeler
SECRETARIES: Mr. D. P. Greaves, 56 Wimpole St., London, W. 1
Mr. J. H. Dobree, 116 Wood St., Barnet, Herts.
TIME AND PLACE: Second Thursday, October through December, February through June; 1 Wimpole St., London, W. 1.

THE ROYAL SOCIETY OF MEDICINE, SECTION OF OTOLOGY
PRESIDENT: Mr. Terence Cawthorne
SECRETARIES: Mr. R. Hunt Williams, 36 Shinfield Rd., Reading
Mr. William McKenzie, 76 Harley St., London, W. 1.
TIME AND PLACE: First Friday, November through June, except January and April; 1 Wimpole St., London, W. 1.

THE ROYAL SOCIETY OF MEDICINE, SECTION OF LARYNGOLOGY
PRESIDENT: Mr. R. L. Flett
SECRETARIES: Mr. D. Ranger, 62 Wimpole St., London, W. 1.
Mr. I. B. Thorbun, 160 Whitegate Dr., Blackpool
TIME AND PLACE: First Friday, November through June, except January and April; 1 Wimpole St., London, W. 1.

MIDLAND OPHTHALMOLOGICAL SOCIETY

PRESIDENT: Mr. I. Lloyd Johnstone
SECRETARIES: Mr. M. J. Roper-Hall, Birmingham and Midland Eye Hospital, Church St., Birmingham 3
Mr. W. Martin Walker, Birmingham and Midland Eye Hospital, Church St., Birmingham 3
TIME AND PLACE: November 6, 1959, Coventry and Warwickshire Hospital, Stoney Stanton Rd., Coventry

SCOTTISH OPHTHALMOLOGICAL CLUB

PRESIDENT: Dr. J. R. Paterson
SECRETARIES: Dr. C. R. S. Jackson, 1 Melville St., Edinburgh 3
Dr. D. Christison, 21 Eastcote Ave., Glasgow, W. 4
TIME AND PLACE: March 26, 1960, Edinburgh Royal Infirmary

SOUTHERN OPHTHALMOLOGICAL SOCIETY

PRESIDENT: Mr. L. B. Hartley
SECRETARY: Mr. Nigel Cridland, 25 Craneswater Park, Southsea, Portsmouth

India

ALL-INDIA OPHTHALMOLOGICAL SOCIETY

PRESIDENT: Dr. Tulsidas
SECRETARY: Dr. Y. K. C. Pandit, Bombay Mutual Bldg., Fort, Bombay 1
TIME AND PLACE: First week of February, 1960; Agra

OPHTHALMOLOGICAL SOCIETY OF BENGAL

PRESIDENT: Major H. K. Indra
SECRETARIES: Dr. A. K. Sen and Dr. A. N. Basu, 3 Lakeview Rd., Bengal
PLACE: The Eye Infirmary, Calcutta Medical College, West Bengal

BOMBAY OPHTHALMOLOGICAL ASSOCIATION

PRESIDENT: Dr. S. N. Cooper
SECRETARY: Dr. A. M. Gokhale, A-4 Sahakar Nivas, Off Gokhale Road South, Bombay 28, India
TIME AND PLACE: 7:30 p.m., Third Wednesday of each month; various hospitals

Ireland

IRISH OPHTHALMOLOGICAL SOCIETY

PRESIDENT: Dr. B. Lynn
SECRETARY: Dr. T. F. Roche, 25 Fitzwilliam Pl., Dublin
TIME AND PLACE: May 5-7, 1960, Dublin

The Netherlands

NEDERLANDSCH OOGHEELKUNDIG GEZELSCHAP

PRESIDENT: Prof. Dr. M. C. Colenbrander
SECRETARY: Dr. P. G. Binkhorst, Sweelincklaan 20, Bilthoven

New Zealand

THE OPHTHALMOLOGICAL SOCIETY OF NEW ZEALAND

PRESIDENT: Dr. C. Pittar
SECRETARY: Dr. C. C. Ring, 1A Alfred St., Auckland, C. 1

Norway

NORSK OFTALMOLOGISK FORENING

PRESIDENT: Dr. Einar Trumpy
SECRETARY: Dr. Hans Peter Petersen, Rikshospitalets Øyeavdeling, Oslo
TIME AND PLACE: Four times a year; Rikshospitalets Øyeavdeling, Oslo

Pakistan

OPHTHALMOLOGICAL SOCIETY OF PAKISTAN

PRESIDENT: Lt. Gen. W. A. Burki
SECRETARY: Dr. Raja Mumtaz, 70 Nedous Hotel, Lahore

Paraguay

SOCIETY OF OPHTHALMOLOGY OF PARAGUAY

PRESIDENT: Dr. Honorio Campuzano
SECRETARY: Emilio Gonzales Gini, Estados Unidos 183 Asunción, Paraguay
TIME AND PLACE: Monthly; Circulo Paraguayo de Medicos, Asunción

Portugal

SOCIEDADE PORTUGUESA DE
OTORRINOLARINGOLOGIA E DE BRONCO-ESOFAGOLOGIA

PRESIDENT: Dr. Alberto Luís de Mendonca
SECRETARIES: Dr. Antonio da Costa Quinta, Av. da Liberdade 65, Lisbon 1
Dr. Albano Coelho, Av. da Liberdade 65, Lisbon 1

Spain

SOCIEDAD OFTALMOLOGICA HISPANO-AMERICANA

PRESIDENT: Prof. Dr. José Pérez-Llorca
SECRETARY: Dr. Carlos Costi García de Tuñón, Montalban 7, Madrid

Sweden

SVENSKA OGONLAKAREFORENINGEN,
SVENSKA LAKARESALLSKAPETS SEKTION FOR OFTALMOLOGI

PRESIDENT: Prof. Dr. G. Karpe
SECRETARY: Dr. Ilmari Rendahl, Karolinska sjukhuset, Stockholm 60

Union of South Africa

THE OPHTHALMOLOGICAL SOCIETY OF SOUTH AFRICA

PRESIDENT: Dr. J. Graham Scott
SECRETARY: Dr. E. T. Meyer, 220 Lister Bldg., Jeppe St., Johannesburg

Venezuela

SOCIEDAD VENEZOLANA DE OTORINOLARINGOLOGIA

PRESIDENT: Dr. Alfredo Celis Pérez
SECRETARY: Dr. Jesus Miralles, Centro Médico, Caracas

NATIONAL

AMERICAN ACADEMY OF OPHTHALMOLOGY AND OTOLARYNGOLOGY

PRESIDENT: John H. Dunnington, M.D.
EXECUTIVE SECRETARY-TREASURER: William L. Benedict, M.D., 15 Second St. S.W., Rochester, Minn.
TIME AND PLACE: October 9-14, 1960; Palmer House, Chicago

AMERICAN BRONCHO-ESOPHAGOLOGICAL ASSOCIATION

PRESIDENT: Verling K. Hart, M.D.
SECRETARY: F. Johnson Putney, M.D., 1712 Locust St., Philadelphia 3, Pa.
TIME AND PLACE: March 15-16, 1960; Deauville Hotel, Miami Beach

AMERICAN LARYNGOLOGICAL ASSOCIATION

PRESIDENT: W. J. McNally, M.D.
SECRETARY: Lyman G. Richards, M.D., 12 Clovelly Road, Wellesley Hills 81, Mass.
TIME AND PLACE: March 1960; Deauville Hotel, Miami Beach

AMERICAN LARYNGOLOGICAL, RHINOLOGICAL AND OTOLOGICAL SOCIETY, INC.

PRESIDENT: Theodore E. Walsh, M.D.
SECRETARY: C. Stewart Nash, M.D., 708 Medical Arts Bldg., Rochester 7, N. Y.
TIME AND PLACE: March 15-17, 1960; Miami Beach

EASTERN SECTION

PRESIDENT: Joseph Goldman, M.D.
SECRETARY: David W. Brewer, M.D., 1100 Genesee St., Syracuse, N. Y.

MIDDLE SECTION

PRESIDENT: George E. Shambaugh, Jr., M.D.
SECRETARY: Marlow W. Manion, M.D., 601 Hume Mansur Bldg., Indianapolis 4
TIME AND PLACE: January 1960; Chicago

SOUTHERN SECTION

SECRETARY: James A. Harrill, M.D., Bowman Gray School of Medicine, Winston-Salem, N. C.

WESTERN SECTION

PRESIDENT: Rex L. Murphy, M.D.
SECRETARY: Francis A. Sooy, M.D., 490 Post St., San Francisco
TIME AND PLACE: January 22-23, 1960; Brown Palace Hotel, Denver

AMERICAN MEDICAL ASSOCIATION, SECTION ON LARYNGOLOGY, OTOLOGY AND RHINOLOGY

CHAIRMAN: Paul H. Holinger, M.D.
SECRETARY: Walter E. Heck, M.D., Stanford Hospital, San Francisco 15
TIME AND PLACE: June 13-17, 1960; Miami Beach

AMERICAN MEDICAL ASSOCIATION, SECTION ON OPHTHALMOLOGY

CHAIRMAN: Harold G. Scheie, M.D.
SECRETARY: Henry F. Allen, M.D., 200 Beacon St., Boston
TIME AND PLACE: June 13-17, 1960; Miami Beach

AMERICAN OPHTHALMOLOGICAL SOCIETY

PRESIDENT: Algernon B. Reese, M.D.
SECRETARY-TREASURER: Maynard C. Wheeler, M.D., 30 W. 59th St., New York 19
TIME AND PLACE: May 16-18, 1960; Broadmoor Hotel, Colorado Springs

AMERICAN OTOLOGICAL SOCIETY, INC.

PRESIDENT: Robert C. Martin, M.D.
SECRETARY-TREASURER: Lawrence R. Boies, M. D., University Hospital, Minneapolis
TIME AND PLACE: March 13-14, 1960; The Deauville, Miami Beach

THE AMERICAN OTORHINOLOGIC SOCIETY FOR PLASTIC SURGERY, INC.

PRESIDENT: Raymond S. Rosedale, M.D.
SECRETARY: Joseph G. Gilbert, M.D., 75 Barberry Lane, Roslyn Heights, N. Y.
TIME AND PLACE: March 6-13, 1960, Deauville Hotel, Miami Beach

AMERICAN SOCIETY OF FACIAL PLASTIC SURGERY

PRESIDENT: Oscar J. Becker, M.D.
SECRETARY: Samuel M. Bloom, M.D., 123 E. 83rd St., New York 28

AMERICAN SOCIETY OF OPHTHALMOLOGIC AND OTOLARYNGOLOGIC ALLERGY

PRESIDENT: Michael H. Barone, M.D.
SECRETARY: Daniel S. De Stio, M.D., 1006 Highland Bldg., Pittsburgh 6
TIME AND PLACE: October 9-14, 1960; Palmer House, Chicago

ASSOCIATION FOR RESEARCH IN OPHTHALMOLOGY, INC.

CHAIRMAN: Hunter H. Romaine, M.D.
SECRETARY-TREASURER: Lorand V. Johnson, M.D., 10515 Carnegie Ave., Cleveland 6

NATIONAL SOCIETY FOR THE PREVENTION OF BLINDNESS

PRESIDENT: Ira V. Hiscock, Sc.D.
EXECUTIVE DIRECTOR: John W. Ferree, M.D.
SECRETARY: Regina E. Schneider, 1790 Broadway, New York 19
TIME AND PLACE: March 30-April 1, 1960; Brown Palace Hotel, Denver

OTOSCLEROSIS STUDY GROUP

PRESIDENT: E. H. Campbell, M.D.
SECRETARY: Raymond Jordan, M.D., 121 University Place, Pittsburgh
TIME AND PLACE: October 9-14, 1960; Palmer House, Chicago

PUERTO RICAN MEDICAL ASSOCIATION, SECTION ON OPHTHALMOLOGY AND OTOLARYNGOLOGY

PRESIDENT: Antonio Rullán, M.D.
SECRETARY: Ophthalmology: Carlos J. Margarida, M.D., Box 9111, Santurce
Otolaryngology: Lorenzo Arsuaga, M.D., Box 9111, Santurce

PUERTO RICAN OPHTHALMOLOGICAL SOCIETY

PRESIDENT: José Fiol Bigas, M.D.
SECRETARY: Guillermo Picó, M.D., 1475 Wilson Ave., Santurce
TIME AND PLACE: Bimonthly; Puerto Rican Medical Association Bldg.

SOCIETY OF MILITARY OPHTHALMOLOGISTS

PRESIDENT: Aubrey Jennings, M.D.
SECRETARY: Capt. Don W. Longfellow, MC, USA, Armed Forces Institute of Pathology, WRAMC, Washington 12, D. C.

SOCIETY OF MILITARY OTOLARYNGOLOGISTS

PRESIDENT: Lt. Col. Stanley H. Bear, USAF
SECRETARY-TREASURER: Capt. Maurice Schiff, MC, USN, U. S. Naval Hospital, Oakland, Calif.

REGIONAL

ARK-LA-TEX OTO-OPHTHALMIC SOCIETY

PRESIDENT: Jack W. Pou, M.D.
SECRETARY: Richard Gibson, M.D., Doctors Bldg., Margaret Place, Shreveport, La.
TIME AND PLACE: 7:00 p.m., First Monday of each month, September through June; Confederate Memorial Hospital, Shreveport, La.

INTER-MOUNTAIN OTO-OPHTHALMOLOGICAL SOCIETY

PRESIDENT: Wilson Hales, M.D.
SECRETARY: Don B. McAffee, M.D., 508 E. South Temple, Salt Lake City
TIME AND PLACE: 7:00 p.m., Third Monday of each month; University Club, Salt Lake City

LOUISIANA-MISSISSIPPI OPHTHALMOLOGICAL AND OTOLARYNGOLOGICAL SOCIETY

PRESIDENT: Lucian W. Alexander, M.D.
SECRETARY: Edley H. Jones, M.D., 1301 Washington St., Vicksburg, Miss.
TIME AND PLACE: April 8-9, 1960; Edgewater Gulf Hotel, Edgewater Park, Miss.

NEW ENGLAND OPHTHALMOLOGICAL SOCIETY

PRESIDENT: Brendan D. Leahey, M.D.
SECRETARY: Warren D. Haley, M.D., 78 Church St., Winchester, Mass.
TIME AND PLACE: Third Wednesday, November through April; Massachusetts Eye and Ear Infirmary, 243 Charles St., Boston

NEW ENGLAND OTO-LARYNGOLOGICAL SOCIETY

PRESIDENT: John E. Whitworth, M.D.
SECRETARY: Burton E. Lovesey, M.D., 15 W. Central St., Natick, Mass.
PLACE: Massachusetts Eye and Ear Infirmary, 243 Charles St., Boston

PACIFIC COAST OTO-OPHTHALMOLOGICAL SOCIETY

PRESIDENT: John F. Tolan, M.D.
SECRETARY: Homer E. Smith, M.D., 686 12th Ave., Salt Lake City 3
TIME AND PLACE: May 22-26, 1960; Hotel St. Francis, San Francisco

SIOUX VALLEY ACADEMY OF OPHTHALMOLOGY AND OTOLARYNGOLOGY

PRESIDENT: W. P. Davey, M.D.
SECRETARY: Verne R. Heimann, M.D., 501 Insurance Exchange Bldg., Sioux City, Iowa

SOUTHERN MEDICAL ASSOCIATION,
SECTION ON OPHTHALMOLOGY AND OTOLARYNGOLOGY

CHAIRMAN: G. S. Fitz-Hugh, M.D.
SECRETARY: Mercer G. Lynch, M.D., 3503 Prytania St., New Orleans 15
TIME AND PLACE: November 16-19, 1959; Atlanta, Ga.

WISCONSIN-UPPER MICHIGAN SOCIETY OF
OPHTHALMOLOGY AND OTOLARYNGOLOGY

PRESIDENT: George Nadeau, M.D.
SECRETARY: G. L. McCormick, M.D., 650 S. Central Ave., Marshfield, Wis.

STATE AND LOCAL

Alabama

ALABAMA ACADEMY OF OPHTHALMOLOGY AND OTOLARYNGOLOGY

PRESIDENT: Daniel S. Hagood, M.D.
SECRETARY: Karl Benkwith, M.D., 14 Catoma St., Montgomery

THE BIRMINGHAM EYE, EAR, NOSE AND THROAT SOCIETY

PRESIDENT: Each member in alphabetical order
SECRETARY: Joseph M. Dixon, M.D., 2156 Highland Ave., Birmingham 5
TIME AND PLACE: Monthly; The Club

Arizona

PHOENIX OPHTHALMOLOGICAL SOCIETY

PRESIDENT: Paul H. Case, M.D.
SECRETARY: Sheldon Zinn, M.D., 15 E. Monroe, Phoenix
TIME AND PLACE: 7:30 p.m., Second Thursday bimonthly, September through May; Westward Ho Hotel

Arkansas

ARKANSAS MEDICAL SOCIETY, EYE, EAR, NOSE AND THROAT SECTION

PRESIDENT: Max McAllister, M.D.
SECRETARY: James L. Smith, M.D., 623 Woodlane, Little Rock
TIME AND PLACE: April 1960; Pine Bluff

California

CALIFORNIA MEDICAL ASSOCIATION, EYE SECTION

PRESIDENT: A. Ray Irvine, Jr., M.D.
SECRETARY: Earle H. McBain, M.D., 1530 Fifth Ave., San Rafael
TIME AND PLACE: February 21-24, 1960; Ambassador Hotel, Los Angeles

CALIFORNIA MEDICAL ASSOCIATION, EAR, NOSE AND THROAT SECTION

PRESIDENT: Ewing Seligman, M.D.
SECRETARY: H. W. Kohlmoos, M.D., 426 17th St., Oakland
TIME AND PLACE: February 22, 1960; Los Angeles

ALTA CALIFORNIA OPHTHALMOLOGICAL SOCIETY

PRESIDENT: C. Richard Shannon, M.D.
SECRETARY: Robert E. Hopkins, M.D., 215 Medical-Dental Bldg., Stockton
TIME AND PLACE: Third Thursday of each month, September through June; Sutter Club, Sacramento

EAST BAY OPHTHALMOLOGICAL SOCIETY

PRESIDENT: Owen Dickson, M.D.
SECRETARY: Stuart B. Stephens, M.D., 2241 Central Ave., Alameda

LOS ANGELES OPHTHALMOLOGICAL JOURNAL CLUB

PRESIDENT: Charles J. Aucreman, M.D.
SECRETARY: Arthur S. Gray, M.D., 301 N. Prairie Ave., Inglewood
TIME AND PLACE: 8:00 p.m., Second Monday of each month, September through June; Los Angeles County Medical Association Bldg., 1925 Wilshire Blvd., Los Angeles

LOS ANGELES SOCIETY OF OPHTHALMOLOGY AND OTOLARYNGOLOGY

PRESIDENT: Wendell C. Irvine, M.D.
SECRETARY: Herschel H. Burston, M.D., 6333 Wilshire Blvd., Los Angeles 48
TIME AND PLACE: Ophthalmology, 6:00 p.m., First Thursday of each month;
Otolaryngology, 6:00 p.m., Fourth Monday of each month;
Los Angeles County Medical Association Bldg., 1925 Wilshire Blvd., Los Angeles

PENINSULA EYE SOCIETY

PRESIDENT: William J. Hornyak, M.D.
SECRETARY: Loren W. Denny, M.D., 140 E. Poplar Ave., San Mateo
TIME: Third Thursday evening of each month

SAN DIEGO OPHTHALMOLOGICAL SOCIETY

PRESIDENT: John Power, M.D.
SECRETARY: William A. Yancey, M.D., 233 A St., San Diego
TIME AND PLACE: 6:00 p.m., Second Monday of each month; University Club, San Diego

SAN FRANCISCO MEDICAL SOCIETY, EYE SECTION

CHAIRMAN: Bayard H. Colyear, Jr., M.D.; 490 Post St., San Francisco
TIME AND PLACE: Quarterly; San Francisco County Medical Society Bldg.

SAN FRANCISCO OPHTHALMOLOGICAL ROUND TABLE

PRESIDENT: Jerome W. Bettman, M.D.
SECRETARY: Albert J. Brinckerhoff, M.D., 490 Post St., San Francisco 2

SANTA BARBARA OPHTHALMOLOGICAL SOCIETY

PRESIDENT: A. George Hanson, M.D.
SECRETARY: John M. Richards, M.D., 1921 State St., Santa Barbara
TIME AND PLACE: 7:30 p.m., Third Thursday evening of each month, St. Francis Hospital Library

TRI-COUNTY SOCIETY OF OPHTHALMOLOGY

PRESIDENT: Albert Biegel, M.D.
SECRETARY: Gordon Witter, M.D., 2 W. Fern Ave., Redlands

Colorado

COLORADO OPHTHALMOLOGICAL SOCIETY

PRESIDENT: Gertrude S. Hausmann, M.D.
SECRETARY: Max Kaplan, M.D., 216 Republic Bldg., Denver 2
TIME AND PLACE: Third Saturday of each month, September through May; University of Colorado Medical Center, 4200 E. Ninth Ave., Denver

COLORADO OTOLARYNGOLOGICAL SOCIETY

PRESIDENT: James Rigg, M.D.
SECRETARY: Kemp Cooper, M.D., 2627 E, Denver
TIME AND PLACE: First Saturday of each month; Denver County Medical Library

Connecticut

CONNECTICUT STATE MEDICAL SOCIETY, EYE, EAR, NOSE AND THROAT SOCIETY

PRESIDENT: Clement C. Clarke, M.D.
SECRETARY: John P. Simses, M.D., 144 Golden Hill St., Bridgeport

District of Columbia

MEDICAL SOCIETY OF THE DISTRICT OF COLUMBIA, SECTION ON OPHTHALMOLOGY

PRESIDENT: Walter J. Romejko, M.D.
SECRETARY-TREASURER: Paul E. Zehfuss, M.D., 1830 K St. N.W., Washington, D. C.
TIME AND PLACE: February 9, 1960, April 4, 1960; Kennedy-Warren Hotel, Washington, D. C.

MEDICAL SOCIETY OF THE DISTRICT OF COLUMBIA, SECTION ON OTOLARYNGOLOGY

PRESIDENT: Morris Krucoff, M.D.
SECRETARY: Adrian Delaney, M.D., 121 N. Washington, Alexandria, Va.
TIME AND PLACE: 6:30 p.m., Second Tuesday of November, January, March and May; Army Navy Club

Florida

FLORIDA SOCIETY OF OPHTHALMOLOGY AND OTOLARYNGOLOGY

PRESIDENT: G. Dekle Taylor, M.D.
SECRETARY: Joseph Taylor, Jr., M.D., One Davis Bldg., Tampa
TIME AND PLACE: April 8-12, 1960; Jacksonville

GREATER MIAMI EYE, EAR, NOSE AND THROAT SOCIETY

PRESIDENT: Mariano C. Caballero, M.D.
SECRETARY-TREASURER: H. Carlton Howard, M.D., Suite 219, Plaza Bldg., 245 S. E. First St., Miami 32
TIME AND PLACE: Quarterly; McAllister Hotel

Georgia

GEORGIA SOCIETY OF OPHTHALMOLOGY AND OTOLARYNGOLOGY

PRESIDENT: John Kirk Train, M.D.
SECRETARY: Walter P. Rhyne, M.D., P. O. Box 206, Albany
TIME AND PLACE: March 24-26, 1960; General Oglethorpe Hotel, Savannah

ATLANTA EYE, EAR, NOSE AND THROAT SOCIETY

PRESIDENT: Taylor Burgess, M.D.
SECRETARY: J. Jack Stokes, M.D., 512 Medical Arts Bldg., Atlanta
TIME AND PLACE: 7:30 p.m., Fourth Monday of each month; Fulton County Academy of Medicine

Hawaii

HAWAII EYE, EAR, NOSE AND THROAT SOCIETY

PRESIDENT: Thomas Frissell, M.D.
SECRETARY: W. T. Minatoya, M.D., 1003 Pensacola St., Honolulu
TIME AND PLACE: Third Thursday of each month; Pacific Club

Illinois

CENTRAL ILLINOIS SOCIETY OF OPHTHALMOLOGY AND OTOLARYNGOLOGY

PRESIDENT: William Hubble, M.D.
SECRETARY: Clarence A. Fleischli, M.D., 520 E. Allen St., Springfield

CHICAGO LARYNGOLOGICAL AND OTOLOGICAL SOCIETY

PRESIDENT: George H. Woodruff, M.D.
SECRETARY: Robert Lewy, M.D., 25 E. Washington St., Chicago 2
TIME AND PLACE: First Monday of each month, October through May; Furniture Club of America, 666 N. Lake Shore Dr., Chicago

CHICAGO OPHTHALMOLOGICAL SOCIETY

PRESIDENT: Clifford P. Sullivan, M.D.
SECRETARY: David Shoch, M.D., 700 North Michigan Ave., Chicago 11
TIME AND PLACE: Third Monday of each month; Illini Union, 715 S. Wood St., Chicago

Indiana

INDIANA ACADEMY OF OPHTHALMOLOGY AND OTOLARYNGOLOGY

PRESIDENT: John Flick, M.D.
SECRETARY: J. Lawrence Sims, M.D., 3400 N. Meridian St., Indianapolis
TIME AND PLACE: May 4 and 5, 1960; Union Bldg., Purdue University, West Lafayette

INDIANAPOLIS OPHTHALMOLOGICAL AND OTOLARYNGOLOGICAL SOCIETY

PRESIDENT: John R. Swan, M.D.
SECRETARY: Theodore R. LeMaster, M.D., 304 Hume Mansur Bldg., Indianapolis
TIME AND PLACE: 6:30 p.m., Second Thursday of each month, November through May; Indianapolis Athletic Club

Iowa

IOWA ACADEMY OF OPHTHALMOLOGY AND OTOLARYNGOLOGY

PRESIDENT: Claire Kos, M.D.
SECRETARY: Arthur C. Wise, M.D., 212 Savings and Loan Bldg., Iowa City

DES MOINES ACADEMY OF OPHTHALMOLOGY AND OTOLARYNGOLOGY

PRESIDENT: C. C. Jones, M.D.
SECRETARY: C. C. Walker, M.D., 304 Bankers Trust Bldg., Des Moines
TIME AND PLACE: Fourth Monday of each month; Des Moines Club

Kansas

KANSAS STATE MEDICAL SOCIETY, SECTION ON OPHTHALMOLOGY AND OTOLARYNGOLOGY

PRESIDENT: Victor R. Moorman, M.D.
SECRETARY: James E. Bresette, M.D., 659 New Brotherhood Bldg., Kansas City

Kentucky

LOUISVILLE EYE AND EAR SOCIETY

PRESIDENT: Thomas E. Booth, M.D.
SECRETARY: Roderick MacDonald, Jr., M.D., Louisville General Hospital, Louisville
TIME AND PLACE: Bimonthly; Provincial House

Louisiana

NEW ORLEANS GRADUATE MEDICAL ASSEMBLY

PRESIDENT: Ambrose H. Storck, M.D.
SECRETARY: Mannie D. Paine, Jr., M.D., Room 103, 1430 Tulane Ave., New Orleans
TIME AND PLACE: March 7-10, 1960; New Orleans

Maryland

BALTIMORE CITY MEDICAL SOCIETY, OPHTHALMOLOGICAL SECTION

PRESIDENT: J. E. Brumback, Jr., M.D.
SECRETARY: Roy O. Scholz, M.D., 11 E. Chase St., Baltimore 2
TIME AND PLACE: Three times yearly; Medical and Chirurgical Faculty Building, 1211 Cathedral St., Baltimore 1

BALTIMORE EAR, NOSE AND THROAT SOCIETY

PRESIDENT: Arthur T. Ward, Jr., M.D.
SECRETARY: Robert Z. Berry, M.D., Medical Arts Bldg., Baltimore
TIME AND PLACE: Quarterly, October to May, University Club, Baltimore

Massachusetts

MASSACHUSETTS MEDICAL SOCIETY, SECTION OF OPHTHALMOLOGY AND OTOLARYNGOLOGY

CHAIRMAN: M. Stuart Strong, M.D.
SECRETARY: Robert E. Klotz, M.D., 243 Charles St., Boston 14
TIME AND PLACE: May 1960; Hotel Statler, Boston

BOSTON CITY HOSPITAL AURAL AND OPHTHALMIC ALUMNI SOCIETY

PRESIDENT: Arthur J. Gorney, M.D.
SECRETARY: Anthony Alba, M.D., 199 Bay State Rd., Boston

Michigan

MICHIGAN STATE MEDICAL SOCIETY, SECTION OF OPHTHALMOLOGY

CHAIRMAN: Fleming A. Barbour, M.D.
SECRETARY: Paul L. Cusick, M.D., 28 W. Adams Ave., Detroit 26

MICHIGAN STATE MEDICAL SOCIETY, SECTION OF OTOLARYNGOLOGY

PRESIDENT: Harold F. Schuknecht, M.D.
SECRETARY: John E. Magielski, M.D., University Hospital, University of Michigan, Ann Arbor

MICHIGAN TRIOLOGICAL SOCIETY

PRESIDENT: R. T. Blackhurst, M.D.
SECRETARY: Roland L. Phillips, M.D., 403 Matthews Bldg., Owosso
TIME AND PLACE: Five times yearly; Lansing or Marshall

DETROIT OPHTHALMOLOGICAL CLUB

PRESIDENT: Members in rotation
SECRETARY: John W. Henderson, M.D., Outpatient Bldg., University Hospital, Ann Arbor
TIME AND PLACE: Second Tuesday of November, December, February, and March; Wayne County Medical Society Bldg., Detroit

DETROIT OPHTHALMOLOGICAL SOCIETY

PRESIDENT: Wesley Reid, M.D.
SECRETARY: Lester E. McCullough, M.D., 521 David Whitney Bldg., Detroit 26
TIME AND PLACE: Fourth Thursday of each month, November through April; Wayne County Medical Society Bldg.

DETROIT OTOLARYNGOLOGICAL SOCIETY

PRESIDENT: Donald S. Bolstad, M.D.
SECRETARY: Ned I. Chalat, M.D., 212 David Whitney Bldg., Detroit 26
TIME AND PLACE: 7:00 p.m., Third Wednesday of each month; Wayne County Medical Society Bldg., Detroit

SAGINAW VALLEY ACADEMY OF OPHTHALMOLOGY AND OTOLARYNGOLOGY

PRESIDENT: Dr. William Knapp
SECRETARY: Arno W. Weiss, M.D., 3521 State St., Saginaw
TIME AND PLACE: First Tuesday of each month; High-Life Inn, Saginaw

Minnesota

MINNESOTA ACADEMY OF OPHTHALMOLOGY AND OTOLARYNGOLOGY

PRESIDENT: Walter Lees Hoffman, M.D.
SECRETARY: John P. Wendland, M.D., 203 Doctors Bldg., Minneapolis 2
TIME AND PLACE: Second Friday of each month; Minneapolis Club, Minneapolis and Minnesota Club, St. Paul

Missouri

KANSAS CITY SOCIETY OF OPHTHALMOLOGY AND OTOLARYNGOLOGY

PRESIDENT: Byron J. Ashley, M.D.
SECRETARY: James T. Robison, Jr., M.D., 4620 J. C. Nichols Pkwy., Kansas City 12
TIME AND PLACE: Third Thursday of each month, September to May; University of Kansas Medical Center

EAR, NOSE AND THROAT CLUB OF ST. LOUIS

PRESIDENT: Edward H. Lyman, M.D.
SECRETARY: Daniel D. Klaff, M.D., 3720 Washington Blvd., St. Louis 8
TIME AND PLACE: Third Wednesday of January, March, May and November; University Club

ST. LOUIS OPHTHALMOLOGICAL SOCIETY

PRESIDENT: Edmund B. Alvis, M.D.
SECRETARY: Lawrence T. Post, Jr., M.D., 100 N. Euclid, St. Louis 8

Montana

MONTANA ACADEMY OF OPHTHALMOLOGY AND OTOLARYNGOLOGY

PRESIDENT: Hanley Burton, M.D.
SECRETARY: R. M. Morgan, M.D., 905 Helena Ave., Helena
TIME AND PLACE: February 22, 1960, Bozeman

Nebraska

NEBRASKA ACADEMY OF OPHTHALMOLOGY AND OTOLARYNGOLOGY

PRESIDENT: Robert Lovgren, M.D.
SECRETARY: George Alliband, M.D., 1020 Medical Arts Bldg., Omaha
TIME: May and September

OMAHA EYE, EAR, NOSE AND THROAT SOCIETY

PRESIDENT: Frank Lipp, M.D.
SECRETARY: Richard C. Greenberg, M.D., 1421 Dodge St., Omaha
TIME AND PLACE: Third Wednesday of January, March, May, September, and November; Omaha Club, 20th and Douglas, Omaha

New Jersey

ACADEMY OF MEDICINE OF NEW JERSEY, EYE, EAR, NOSE AND THROAT SECTION

CHAIRMAN: Myron J. Shapiro, M.D.
SECRETARY: H. L. Moskowitz, M.D., 1038 Clinton Ave., Irvington, N. J.
TIME AND PLACE: December 1959; Newark Eye and Ear Infirmary, Newark

MEDICAL SOCIETY OF NEW JERSEY, SECTION ON OPHTHALMOLOGY

PRESIDENT: Jay E. Mishler, M.D.
SECRETARY: Louis Amdur, M.D., 5 Exchange Place, Jersey City 2
TIME AND PLACE: May 14-18, 1960; Haddon Hall, Atlantic City

NEW JERSEY ACADEMY OF OPHTHALMOLOGY AND OTOLARYNGOLOGY

PRESIDENT: Albert Moriconi, M.D.
SECRETARY: John Scillieri, M.D., 660 Broadway, Paterson

NEW JERSEY OPHTHALMOLOGICAL SOCIETY

PRESIDENT: Louis Amdur, M.D.
SECRETARY: Alfonse A. Cinotti, M.D., 3285 Hudson Blvd., Jersey City

NEW JERSEY SOCIETY OF OPHTHALMOLOGY AND OTOLARYNGOLOGY

PRESIDENT: Edgar P. Cardwell, M.D.
SECRETARY: Albert F. Moriconi, M.D., 438 Hamilton Ave., Trenton 9

HUDSON COUNTY EYE, EAR, NOSE AND THROAT SOCIETY

PRESIDENT AND SECRETARY: Nathaniel J. Shapiro, M.D., 1201 Palisade Ave., Union City
TIME AND PLACE: Second Monday of each month; Pete and Dominic Restaurant, Jersey City

New Mexico

NEW MEXICO OPHTHALMOLOGICAL SOCIETY

PRESIDENT: J. A. Dillahunt, M.D.
SECRETARY: James T. McGuckin, M.D., 107 Girard Blvd. S. E., Albuquerque

New York

MEDICAL SOCIETY OF THE STATE OF NEW YORK, OTOLARYNGOLOGY SECTION

CHAIRMAN: Samuel F. Kelley, M.D.
SECRETARY: Daniel C. Baker, Jr., M.D., 903 Park Ave., New York 21

NEW YORK ACADEMY OF MEDICINE, SECTION ON OPHTHALMOLOGY

PRESIDENT: Harold W. Brown, M.D.
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HEALTH ASPECTS OF HEARING CONSERVATION

Mayflower Hotel — Washington, D. C.
May 18-19, 1959

U. S. DEPARTMENT OF HEALTH, EDUCATION AND WELFARE

Office of Vocational Rehabilitation — Public Health Service

Published as a Supplement to the Transactions of the

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NOVEMBER - DECEMBER, 1959

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INTRODUCTION

The National Working Conference on Health Aspects of Hearing Conservation was organized at the request of Dr. A. L. Chapman, Chief of the Division of Special Health Services of the United States Public Health Service. Dr. Aram Glorig, his special consultant, was asked to consider whether such a meeting was needed and how it could be organized. Dr. Glorig appointed a special committee, which reported that a national conference, jointly sponsored by the United States Public Health Service and the Office of Vocational Rehabilitation, would serve a highly useful purpose. Dr. Glorig was then authorized to organize the conference and choose its participants.

The conference was held May 18 and 19, 1959, at the Mayflower Hotel in Washington, D. C. The nearly 200 men and women attending came from all parts of the country and from every profession concerned with hearing.

Four work groups were selected to discuss, evaluate and recommend in the following areas:

Early Case Finding
Care of Persons with Impaired Hearing
Habilitation and Rehabilitation
Training and Research

The chairmen and recorders of each work group and other key participants held a pre-planning session on the eve of the conference. The conference proper was organized into five sessions:

1. A general session of welcome; orientation by the chairman and selected speakers; specific instructions by work group chairmen.
2. Four simultaneous discussion sessions of the work groups.
3. Four simultaneous two-hour sessions of the chairmen, recorders and a few key members of each work group, to organize the discussion into a report for further group consideration.
4. Completion of reports by the work groups.
5. A summary session at which the final work-group reports were read and discussed in the conference at large.

The conference closed with a summation of the proceedings by the chairman.

The proceedings of the convention follow, with some abridgment and a slight rearrangement of order. As the four sets of recommendations were independently prepared, their formats vary. All, however, were approved without dissent by the conference as a whole.

GENERAL SESSIONS

THE TASK

From the Welcoming Remarks of Mr. E. E. Ferebee, Deputy Director of the Office of Vocational Rehabilitation:

One cannot long be in rehabilitation work without realizing the challenging problems of the deaf and hard of hearing. Difficulty in communication is one of the greatest threats to normal, happy and satisfactory living.

We are far from satisfied with the record. Rehabilitations in our public program among those with hearing defects have recently averaged only about 4,500 a year. One reason is the shortage of people with the knowledge, skill and understanding to bring the power of communication to those who lack it.

Hearing impairment has social as well as medical aspects. One has to understand and offset the economic and social effects of such impairment on the individual. We know a great deal more about diagnosis and corrective measures than we have been able to apply. In short, our wisdom in biology, electronics and education is greater than our ability to use it within our social organization. How can we get diagnosis and corrective measures to people who need them? How can we get people to continue with such services as long as they are needed?

The Office of Vocational Rehabilitation since 1954 has had authority to make grants to educational institutions and other nonprofit organizations for research and demonstration projects. We have made 23 such grants in hearing and speech—a total of about one million dollars. We want to do more. But we are limited by the availability of qualified investigators with imagination and a willingness to work in this area.

For the past two years, we have also been putting about a quarter of a million dollars annually into a program for training speech and hearing therapists Some ten schools are now participating in it.

This meeting presents a chance to find answers to many of the questions that have perplexed us and an opportunity to develop guidelines by which communities of all sizes can define their problems in speech and hearing and develop suitable service programs.

* * *

From the Welcoming Remarks of A. L. Chapman, M.D., Chief of the Division of Special Health Services of the United States Public Health Service:

One of our biggest problems in Public Health is this: While research is turning up much that could be of tremendous value to the man in the street, we often fail to get it applied for the full benefit of the people who need it most.

This conference was called to give you a chance to present your case in a public forum, and I am sure that you will take full advantage of it. I hope that you will ask yourselves some very important questions:

Is everything possible being done to prevent deafness? Where is our deafness coming from?

Are we *sure* that our children are not going through life partly deaf because no one cares enough to seek them out?

How many times in a lifetime does the average American have his hearing evaluated, and is it often enough?

When persons are found with a hearing loss, are treatment services available in every community regardless of circumstances? Is the availability of such services real or only theoretical? Are the facilities modern and available to old as well as young, to the poor as well as to the rich?

Are adequate funds being spent in research to find the real causes of deafness? What causes otosclerosis? What is the effect of noise? What about the overgrowth of lymphoid tissue? Must all old people inevitably develop hearing impairments?

Are enough otologists and audiologists being trained? Do we need more paramedical personnel? How many would be needed to provide really adequate service to all persons with impaired hearing?

This conference gives you an opportunity to say what is needed in terms of people, money and facilities and what needs to be done in the next ten years to overcome some of these deficiencies.

If you speak up boldly—and, if necessary, loudly—I am sure that a very wealthy and kindly nation will turn its attention to those with impaired hearing, just as it has turned its attention to those with tuberculosis, poliomyelitis, haert trouble and cancer.

* * *

From Dr. Aram Glorig's Introductory Remarks as Conference Chairman:

This is a working conference—with the emphasis on *work*. Each person was invited because of the contribution he could make. We are here not to argue controversial points, but to organize and distill what we are reasonably sure of and to make specific recommendations. We now have an opportunity to put hearing conservation in its rightful place as a public health problem. This is the purpose of our conference.

DEAFNESS IN THE 20TH CENTURY

POWRIE VAUX DOCTOR, PH.D.

Handicaps of deafness run far beyond the physical. The speaker outlines the educational, linguistic, social, emotional and mental ills that may follow. With some praise for the achievements of vocational rehabilitation, he concludes with a warning on the growing problem of the multiple-handicapped. Dr. Doctor, of Gallaudet College, is editor of *American Annals of the Deaf*.

Deafness in this age of communication and automation is a serious and, in some ways, a growing problem. In speaking of deafness I am not referring to the merely hard of hearing. I am referring in general to people whose loss is of such a nature and extent as to constitute a severe handicap. Some people believe the physical aspects of deafness are the only ones in need of consideration and research. Would that this situation were true!

Possibly paramount among the ills that follow the physical disability is the *educational* handicap. When we stop to realize how much of the world's activity in the 20th century depends on audition, we get a faint glimpse of how much the deaf child is deprived of by failing to hear what is going on in his environment. And when we refer to the educational handicap of deafness, we mean, specifically, that of language.

The January 1959 issue of *American Annals of the Deaf* lists over 400 speech and hearing clinics in the United States. As a teacher of the deaf, I like the term "speech and hearing." It pinpoints two main handicaps of deafness. However, I wish to point up the fact—especially for children whose deafness dates from birth or infancy—that the great problem in rehabilitation and teaching is language itself.

We sincerely hope that all deaf children can be taught to speak and read lips. But above all a deaf child must be taught—either orally or manually—how to read and write if he is going to be able to make his way in the world. In every classroom for the deaf I wish we could have a "lingogram" as well as an audiogram. I believe many deaf pupils are more segregated from their hearing fellows through lack of an adequate education than because of poor speech or lipreading ability.

It is the instruction of these pupils that will determine how well they will be accepted into the community. In spite of all our improvements in electronic amplification and our stress on "special education," I wonder if our deaf boys and girls in the United States will receive as good an education in the last half of the 20th century as in the first.

There is an acute shortage of trained teachers. A survey by the Clarke School for the Deaf and the Hearing and Speech Center at Gallaudet College reports that schools and classes for the deaf need 500 more trained teachers for next year. Speech and hearing centers report they need another hundred. Enrollment in schools and classes for the deaf has increased over 2,000 in just two years. Teaching the deaf — even where deafness is their sole physical handicap—is one of the most arduous jobs in the educational world. It is especially difficult to teach speech to a deaf child who has little or no idea whatever of the meaning of sound. Far too few people are entering the profession.

It is very important to diagnose deafness, determine its causes and make spe-

cific evaluations for educational procedure. But what if we lack the highly specialized personnel needed to carry out the instructions of audiologists and otologists? This is not just a remote possibility. Every educator of the deaf is today confronted with the concrete problem of increased enrollment and a dwindling supply of trained teachers.

Sometimes even we teachers of the deaf forget that language for the deaf must include the ability to read and *grasp meaning.* For over 30 years we have been giving standard tests to students seeking admission to Gallaudet College or its preparatory class. These students come from every type of school and represent all the various methods of teaching the deaf—oral, manual and auditory. As a whole, these pupils rank far down the scale in vocabulary and paragraph meaning.

At a large automobile firm which employed many deaf people I was once told that if written directions were given in one word, the average deaf worker would comprehend as well as the hearing one; if the directions were given in one sentence, a few of the deaf were liable to misunderstand them; but if the directions were given in a paragraph, only the exceptional deaf worker could comprehend them. The teaching of concepts to a mind that has been cut off from the world of sound is a herculean task.

The second handicap of deafness I would list is *social.* It is all very well to say that we will integrate the deaf person into a hearing society, but unless its hearing members realize the implications of deafness, it is very difficult and sometimes impossible for the deaf person to break the social barrier. Hence we find the deaf minority group forming its own clubs and churches to find satisfaction and a surer place in a community of its own.

Deafness can also be an *emotional* handicap, even for the well educated. When communication within one's environment breaks down for any adult person, grave complications may arise. At the 1950 International Congress on the Care of the Deaf-Mute, in Groningen, The Netherlands, Dohn reported that a primary causal factor for deaf persons' being found in mental institutions seemed to be a breakdown between the deaf person and his environment. We must never forget that the mental health of deaf people is as important as their physical health, and in some ways even more important in the 20th century.

Of all the handicaps encountered in deafness, I believe that loneliness, and especially the fear of loneliness, is possibly the greatest problem. You and I as hearing people have been lonely, but I do not believe that we can ever quite realize the degree of loneliness a deaf person sometimes feels in a hearing society. I certainly believe we need more research in the area of mental health and deafness, such as is now being carried on at the New York State Psychiatric Institute. I do not doubt there is some connection between the feeling and fear of loneliness and the incidence of deaf patients in mental hospitals.

Deafness is also a *vocational* handicap. If it were not for the vocational departments in residential schools and the diligent work of vocational rehabilitation workers, far more deaf men and women would be on relief. This is one of the bright spots in the field of deafness. Most deaf people have jobs and have made a reputable place for themselves in the active world.

The case of the deaf person is far from hopeless. The many thousands of well-adjusted deaf people in the United States are proof of what has been done.

But what of the future? One growing problem needs careful scrutiny—that of multiple handicaps. In the *American Annals of the Deaf* we list six multiple-handicapped groups: the aphasic and deaf, the mentally retarded and deaf, the crippled and deaf the brain-injured and deaf, the blind and deaf, and the cerebralpalsied and deaf. Each year the numbers grow larger.

It may be partly due to better diagnostic services and to the fact that educationally we are becoming more aware of such problems. But it may also very well be that 20th century medicine is now saving the lives of many multiple-handicapped deaf boys and girls who years ago would have been in the graveyard. Many older teachers remark that 25 years ago they taught a deaf child, now they teach a child who is deaf and something else, and generally the something else is as serious as the deafness.

Difficult as it is to secure teachers of the deaf, it will be still more difficult to find teachers for the multiple-handicapped child, who may very well be our greatest problem in the 20th century.

We need help for the deaf child and for the child who is deaf and something else. We also need help for the parents. Helping a parent to overcome a feeling of rejection toward a deaf child or a deaf, mentally-retarded child is a great problem for the professional worker. Parent education, such as is being carried on at John Tracy Clinic in California and in many schools, is excellent, but far more services for parents must be made available.

If medicine continues saving more and more lives—even the lives of the multiple-handicapped—this problem of parent education will become most acute. As we read medieval history we study the history of the Madonna in the Church, the Madonna of the fields, the Madonnas of the various groups, each pinpointing some particular idea.

I am wondering if it may come to pass that the symbol of our 20th Century may be, not the atomic bomb, but the Madonna gazing in bewilderment at the handicapped child in her arms, while seeming to say to us: Why have you neglected him?

It is only through education, rehabilitation, research, and cooperative ventures such as this meeting, functioning on a professional level, that such a symbol will not take its place on the pages of history.

HEARING CONSERVATION OVER THE YEARS

EDMUND PRINCE FOWLER, SR., M.D.

Appropriately the dinner speaker was the "grand old man" of hearing conservation. Still very active in the cause of hearing conservation, Dr. Fowler traces, in these excerpts from his talk, the history of hearing conservation in New York, in which he played a pioneer role. He concludes with some general observations that strike a balance in science, statistics and human values.

Before the twentieth century, the severely deafened person was called a "deaf mute" and put in a "deaf and dumb asylum." In these "asylums" the sign language was taught, so the patient could communicate—but only with those who knew the signs. Such an institution was Gallaudet College in Washington.

Nearly all of these schools began as private institutions but subsequently received per capita allowances from the State. Unfortunately there were regulations which kept many children out of them. New York, for example, had a state law that no parent of a deaf child could be compelled to send him to an institution or a residential school.

Early in the century, the Nitchie School for Lip Reading was started in New York. It was incorporated in 1910, the same year the New York League for the Hard of Hearing was formed. Eventually the two organizations melded. I learned of the League and its work after returning from World War I to resume my duties as Chief of Clinic in the Manhattan Eye and Ear Hospital. My chief was Dr. Wendell Phillips, founder of the American Hearing Society (in 1919). We arranged for the League to send all of its children to our clinic for otological examinations, medical or surgical treatment and hearing-aid fittings when indicated. Experienced League teachers taught these children lip reading every Saturday.

The prime objective of the New York League and all the other organizations (now chapters) of the American Hearing Society was the mental and physical health of the hard-of-hearing person. They have never wavered from that objective.

In 1920 and 1921, in cooperation with the Acoustic Research Laboratory of the Western Electric Company under Harvey Fletcher, we developed the 1A Audiometer. It made possible, for the first time, quantitative testing of all frequencies audible to the healthy human ear.

Later, the 4A Phonograph Group Audiometer let us test up to 40 pupils simultaneously. Those showing a 9-decibel-or-more loss on two tests were considered as having a potential hearing impairment and were tested on the 2A Audiometer for air and bone conduction. All who showed a definite hearing loss were referred for medical and surgical treatment to clinics or private physicians, and for instruction in lip reading and the use, if indicated, of a properly fitted hearing aid. In one school we examined all the children for three years in succession—the first such complete examination on so large a scale.

A "Prevention of Deafness Clinic" was established in 1925, the prototype of present hearing and speech centers. Its statistics from 1926 through 1941

show 3,274 persons examined; 21,949 visits for treatment; 1,618 x-rays; 1,235 chemical analyses; 3,925 audiograms. Operations were: mastoidectomy 54, myringotomy 105; tonsillectomy and adenoidectomy 71.

Each patient was carefully examined and his hearing tested audiometrically. Laboratory analyses included basal metabolism rate, blood cell counts including differential cell counts, tuberculin and Wasserman tests and, eventually in all otosclerosis cases, examination of blood serum for calcium, phosphorus, cholesterol and phosphatase activity. Case histories were tabulated in a way that let us compare age groups and all pertinent data. Roentgenogram reports were simplified by the use of symbols.

Two soundproof rooms and two audiometers were procured without cost to the hospital. With the help of the New York League we provided vocational guidance, morale building, rehabilitation in the form of social activities, lip reading lessons and advice on hearing aids.

In 1933, under WPA Project 6065, we began what was eventually the examination of 774,576 children from grade 3 through grade 9 of New York's public and parochial schools. The project was under the direct supervision of Mr. Daniel Caplin, Assistant Director of Health Education. Over 600,000 children were examined in the year ending in April 1935.

All the children were tested with the 4A Audiometer. Re-tests of 24,436 children detected many changes in the hearing level of those coming into the third grade. All showing a hearing impairment were tested with a 2A Audiometer and examined otologically. I instructed a group of otologists for this work. The New York League trained 94 teachers, who taught lip reading to 6,435 children in 415 different schools.

Yearly tests were clearly imperative. The survey showed 3.17 per cent of elementary school pupils had impaired hearing. It was estimated that 4.5 per cent of the school population needed otological diagnosis and about 2.5 per cent needed lip reading instruction. This was fairly close to calculations today.

Grade retardation ran much higher in the hard-of-hearing group—something that is not conducive to a happy childhood and is often a serious factor in the child's health. Other studies, too, have shown comparatively lower IQ's among hard-of-hearing children. This does not necessarily prove a direct causal relationship. It is reasonable to infer that social and economic status contribute to auditory deficiency, since infectious diseases and poor hygiene are more prevalent in poverty.

We did find with 4,566 hard-of-hearing children that lip reading instruction (over six months to two years) cut in half the number of grades repeated.

But we must not forget that health aspects of hearing conservation concern the adult and the aging population as well. Unless the aged with hearing difficulties (presbycusis) are sufficiently helped by hearing aids, indoctrinated with a proper philosophy of aging and adapted to their infirmities, they certainly do not have what we should desire in mental health. Mental health is, in simple words, an adjustment to the environment sufficiently satisfactory to enable us to function fairly well.

We doctors should not play up the frightening details of sickness as some of the clergy play up the hereafter. We must not scare our patients by telling

them if they don't do so-and-so they will go "stone deaf." Unfortunately some otologists, and even some hearing-aid people, have used such tactics. We should be frank to admit that no matter how early we detect deafness, there will be many instances when we can do little or nothing to improve hearing. And we should never use the words "restore hearing."

We should inculcate, in and out of our institutions, a proper philosophy of living in the world as it is. We should condition our patients to live today and enjoy whatever facilities they have to the fullest. The best people for such inculcation are the hard-of-hearing teacher and the social worker. They are wonderful, dedicated people.

Stress the necessity of examining the hearing *of all people*—especially working people as they enter and leave their jobs. It would eliminate much litigation in compensation cases.

Encourage the employment of hard-of-hearing persons. Satisfactory employment will do more for mental health than all the medicines in the world.

Stress the point that in all physical examinations—for insurance, for employment, for "check-ups"—the hearing should be tested, too, and any impairment dealt with.

See that occasional articles appear in magazines—especially women's magazines, because very early detection of deafness means detection by somebody very close to the child. In a very young child, a mother or a nurse can detect deafness more readily than any complicated machine or test.

Instead of "scare" headlines, use "concern" headlines. Be honest. Do not promise an improvement in the hearing. Explain that many cases are congenital, that many are due to destruction of elements in the neural mechanism, but that in spite of this fact we can always improve the patient by teaching him to listen and to speak better and to mix with other people. We must help him to a more satisfactory living. This alone will improve his health.

Along these lines, the Subcommittee on Hard of Hearing and Deaf in New York State, of which I am still chairman, has been issuing alerts every year. We have sent out to every county short leaflets for parents, clergy and teachers. In ten months we have published three very short alerts in the *Journal of Pediatrics*. Don't overdo this or people won't listen to you. You must stagger the information and keep stressing the truth without exaggeration.

Stress the necessity for research and more research, not only on the causes of hearing loss in babies, infants and adolescents, but in the adults and the aging. There are many promising developments in these areas and we must push them to the limit.

Remember that a diagnosis accomplishes nothing without proper management and treatment. The latter needs more of our attention if we are concerned with better health. I think sometimes we have overstressed the decibel loss and underestimated the personal loss of functioning of the individual as a whole. Our tests should not be primarily for statistics but for the health of the patient.

HEARING THRESHOLDS IN THE NATIONAL HEALTH EXAMINATION SURVEY

ALICE M. WATERHOUSE, M.D.

While nobody now knows how many Americans have impaired hearing — or how much of what kinds — the answers may soon be at hand. The Special Health Examination Survey will give adequate sample data on the Nation's health — and its hearing. Dr. Waterhouse, who is Medical Adviser of the U. S. National Health Survey, describes the Survey as a whole and gives some detail on its hearing phases.

The National Health Survey is engaged in a nationwide program to measure health and morbidity. Its Special Health Examination Survey will cover a representative sample of the adult, non-institutionalized civilian population of the United States. The population under the age of 18 years will be surveyed later. Each examination will include a measurement of the auditory air conduction threshold for pure tones. The examinee will also be asked about trouble with hearing, any related medical attention and cause, ringing in the ears and his own assessment of his hearing. His present occupation will be obtained, but not a noise history. Abnormalities of the external and internal ear will be looked for.

The hearing test will be conducted in a soundproof booth by specially trained technicians. It will measure the threshold hearing level in decibels at six frequencies—500, 1,000, 2,000, 3,000, 4,000, and 6,000 cycles per second—on a pure-tone air-conduction-type audiometer calibrated to specifications prepared by Dr. Aram Glorig. The audiometers will be calibrated biologically every two weeks on several staff members and returned to the factory for calibration twice a year.

The program of the U. S. National Health Survey* consists of three parts: a continuing nationwide Health-Household-Interview Survey; a series of Special Surveys; and a series of Methodological Studies to improve techniques in collecting health statistics and to check the validity of data.

Approximately 36,000 households are interviewed each year for information on socioeconomic and demographic characteristics; illnesses, accidents, injuries; and the utilization of medical, dental, and hospital care.

The Health Examination Survey is one of the most important of the first Special Surveys. It will be conducted in mobile units on persons secured through the regular household interviews. The 2-hour, uniform examination, consists of self-interviewer- and physician-administered medical histories; height, weight and other body measurements; audiometric test; visual acuity test; blood pressures; x-rays of chest, hands, and feet; dental examination by a dentist; physical examination by an internist; electrocardiogram (12 lead); venipuncture; and urine analysis.

The blood specimen will be used in tests concerned with volume of red cells, blood sugar, syphilis, cholesterol, and rheumatoid arthritis. The urine specimen will be tested for glucose and albumin (males only).

The examination centers on heart disease, rheumatism and arthritis, diabetes, visual and hearing defects, pul-

*Origin and Program of the U. S. National Health Survey. Health Statistics from the U. S. National Health Survey. Series A-1. U. S. Department of Health, Education, and Welfare, Public Health Service, Publication No. 584-A1. Washington, D. C., 1958.

monary tuberculosis and other chest conditions, physical malformations and impairments. Hitherto unavailable representative data will be obtained on height, weight, body fat, blood pressure, serum cholesterol, hearing threshold, and visual acuity.

Three pilot studies have shown the plan feasible and practical and have led to improved techniques. The last two studies included the procedure for measuring hearing threshold.

Thus, for the first time, data will be made available on the hearing thresholds of the adult population of the Nation as a whole.

THE RELATION OF RESEARCH TO HEALTH ASPECTS OF HEARING CONSERVATION

HALLOWELL DAVIS, M.D.

To ensure clearer communication, the speaker proposes more precise definitions for various terms used in connection with hearing impairment and audiometry. He predicts new trends in professional ideas and methods, distinguishes between *basic* and *clinical* research and discusses who should engage in each. A writer and editor in the field, Dr. Davis is Director of Research at the Central Institute for the Deaf in St. Louis.

It will save time, promote better communication and make for more consistency in our recommendations if we first discuss certain terms we may wish to use. With the chairman's permission I am recommending that we adopt the following definitions. They conform with those contained in a manual of the Subcommittee on Adults of the Committee on Conservation of Hearing of the American Academy of Ophthalmology and Otolaryngology.

Impairment of hearing is the most general term for "something wrong" with the hearing function, but it also implies that what is wrong really makes a difference. The precise definition of what difficulties and deviations are important, as well as how to recognize and measure them, is one of the central issues for our Conference.

Hard of hearing (or *hypoacusis* as a noun) denotes enough impairment of hearing to make communication by unamplified speech more or less difficult. The severity of the condition is measured in decibels with an audiometer. We also describe it as a *partial hearing loss.*

Deaf and *deafness* traditionally mean a severe or complete hearing impairment. They imply a hearing loss so great that communication by voice is very difficult or impossible without amplification. The precise number of decibels that marks the dividing line between "hard of hearing" and "deaf" may vary, depending on whether we are talking about adults or children. The central point is the great difficulty in communication by speech. I believe "deafness" should be restricted to the abnormality that is primarily a loss of auditory sensitivity.

Dysacusis designates hearing impairments that are *not* primarily a loss of auditory sensitivity. Their causes are likely to be found in malfunction or injury of the central nervous system, the auditory nerve or the sense organ of hearing. Dysacusis includes auditory agnosia (or sensory aphasia), phonemic regression, discrimination loss of any kind, and diplacusis. It is not really overcome by simple amplification of speech. Therefore it is not measured in decibels.

Hearing loss designates the condition or symptom of reduced auditory sensitivity (hypoacusis) and is used with such modifiers as *conductive, sensory-neural* and *noise-induced.*

Hearing threshold level, or simply *hearing level* designates a reading on an audiometer. (Our audiometer dials are labeled "hearing loss" because the intensity scale measures deviations from the presumed "normal" values that have been chosen as the zero for each frequency. This use of the term "hearing loss" has led to much ambiguity and confusion, particularly in medicolegal situations.) I strongly recommend that

we say *hearing level*—not *hearing loss*—when we mean the number of decibels registered on the audiometer.

Normal threshold of hearing is a term with many values. These depend on such things as frequency of test tone, character of speech material or other sound, instructions given the person tested and his age, motivation and listening experience. Two common factors, however, are absence of known otological disease and a reasonable degree of cooperation. Normal individuals do not all have exactly the same hearing. Therefore we must think of a *range of normal values*—not a single one. Differences between one person and another within that range do not represent abnormality or impairment.

Reference level for audiometry. A particular set of sound-pressure levels for the octave frequencies used in audiometry have been agreed upon by the American Standards Association for use as the zero on audiometers. A *hearing level* is the difference between this reference value and the threshold value for the particular listener. (Many of us question whether the American audiometric zero was well chosen. Our British and European colleagues prefer a more rigorous standard, and the question of an international zero for audiometers is now under discussion. On the British scale, the range of normal extends to the 20-decibel, and perhaps even to the 25-decibel, hearing level at some frequencies.)

Criterion levels. There are logical as well as numerical differences among four important audiometric levels. Much important research involves the determination or the use of these levels.

The first level is the *audiometric zero.* This is a set of sound-pressure levels (different for each frequency) which lie within the range of normal thresholds and have been arbitrarily chosen as reference levels for audiometric measurements.

The second level is the *limit of normal thresholds.* This limit is not sharp, for "normal" is a statistical concept and the tail of a distribution curve extends quite far from the mean. By conventional statistical definitions (validated by clinical experience) it is generally agreed that the limit of normal for the middle range of frequencies lies somewhere between the 10-decibel and 15-decibel hearing levels.

The third level is the *beginning of impairment.* This is the level at which a practical handicap appears. By general agreement the significant handicap that is used to define impairment is difficulty in communication by speech. Notice that the beginning of impairment for hearing everyday speech has no logical relation whatever to the limit of normal hearing, although they are not many decibels apart. This is purely coincidental. The acoustic power of the human voice and the noisiness of our everyday surroundings are such that there is no practical handicap until the hearing level for speech is at least 15 and perhaps as much as 20 decibels. A more precise definition of the beginning of impairment has been given by the Subcommittee on Noise of the AAOO Committee on Conservation of Hearing in a recent set of rules for medicolegal evaluations: Impairment of hearing is said to begin when the average hearing level for three frequencies 500, 1,000 and 2,000 cycles per second is 16 decibels.

There is another limit at the other end of the scale of impairment. At this level the *impairment* should be evaluated as *total.* For this upper limit the Subcommittee recommends an 82-de-

cibel average hearing level for the same three frequencies. At and beyond this hearing level, communication by unamplified speech is very difficult or impossible. The individual may properly be called "deaf."

The Place of Research in the Health Aspects of Hearing Conservation

Doctors, public health officers, audiologists, social workers, and all others who are engaged in the conservation of hearing are performing a service to those who have or may have some kind of hearing impairment. Whether they are concerned with case finding, medical care, habilitation or rehabilitation, they all constitute a *service group*.

I do not believe that *basic research*, as I understand the term, is for them an appropriate function. Basic research in biophysics, psychoacoustics, etiology, neurophysiology or information theory is a full-time job for specialists trained in such disciplines who can concentrate their entire efforts on a problem. Fortunately, good support for basic research now comes through such organiaztions as the National Science Foundation, the National Institutes of Health, and various voluntary organizations and private foundations. Those who carry out the actual health services should be interested in the results of basic research, but they should feel no obligation to conduct such research themselves, not even to "keep in style." They are not primarily physiologists, psychologists, or epidemiologists, and they are concerned with a particular class of practical problems.

They do have particular research needs, however. They need more and better information on the particular problems that belong to them and to no one else. Each service group should, therefore, state its needs clearly, and, when the basic information and adequate tools are available, undertake *clinical research* to answer those problems.

Two related practical problems that are appropriate for consideration by a group like this conference happen to cut across its divisions of case finding, medical care, habilitation and rehabilitation. They apply to problems of people of all ages. For this reason, Dr. Glorig has given me this opportunity to state them to the Conference as a whole so that each group may give them its consideration. Both hinge on the concept of hearing impairment in the sense of a practical handicap to communication by speech.

The first problem is *the establishment and the improvement of the criteria of impairment*. The establishment of criteria implies, of course, the development of tests, because criteria to be useful must be defined in terms of standardized tests. Such tests should be simple, quantitative, reliable and valid. Do we have all of the tests of hearing impairment that we need? If suitable tests are available, are we agreed on what numerical values properly define the beginning of impairment, 50 per cent impairment and total impairment? How good is the particular rule advocated by the AAOO Committee on Conservation of Hearing? Should speech audiometry be used to evaluate impairment instead of or in addition to pure tone audiometry? How do we measure the impairment caused by a dysacusis that depends on discrimination loss or on a failure of understanding—one that cannot be measured in decibels? What kinds of new tests do we need and where do present tests and criteria break down?

Are present audiometric procedures as good as we like to think they are? Are they reliable enough for practical

decisions on the needs of the individual? Do they yield data good enough for statistical research? Are our audiometric surroundings and the calibrations of our instruments good enough that the data from different clinics may be combined for research purposes? My contacts with audiometry in industry and in military installations, though second-hand, have led me to believe that routine audiometry is much better than no data at all for decisions concerning the individual, but that such data must be scrutinized with great care before they can be considered for research purposes. Retrospective research on old data is not likely to pay off. Data adequate for research must be collected under the critical eyes of those who will use it.

In all of our discussions, it will be well to keep a clear distinction between a diagnostic test which helps the otologist to determine the type and perhaps the causal relations of an impairment and a status test which tells how the individual stands in relation to particular criteria. Actually it may be much more difficult to measure reliably a slight change in status than it is to make a determination that is quite adequate, as part of a total picture, for diagnostic purposes. For example, a difference of 10 points on a discrimination score may make no difference whatever in an otologist's diagnosis, yet he may make much of these 10 points if they represent an "imrovement" following surgery or auditory training, and audiologists may lay great stress on such a difference in advising a patient on his selection of a particular hearing aid.

The second major problem is the *application of the criteria of impairment.* Let us assume for the moment that the AAOO rule for evaluation is correct. In these terms how many adults and how many children in this country of ours have any impairment of hearing, i.e., a hearing level for the three frequencies 500, 1,000 and 2,000 that is 16 decibels or worse? How many have a total impairment, 82 decibels or worse? How many have an impairment of 50 per cent or more? How do the impairments relate to age, to sex, to employment, to geography? Is the USPHS survey of 1936 still adequate as the basis of our answer to these questions? Have those data been re-evaluated in terms of the specific criteria we have now defined?

Secondly, in terms of present audiometric methods, how effective are our present techniques of case finding, of conservation of hearing, of therapy, of habilitation and rehabilitation? The answers to some of these questions may be rather difficult to obtain, but for surgery of the middle ear and for methods of selecting hearing aids the problem is relatively simple.

An important and everlasting problem for any service group is the continued questioning and testing of its own methods of procedure. Are we achieving what we would like to achieve and what we tell other people we believe we do achieve?

Such critical self-examination requires some courage as well as intellectual honesty and integrity. There is always the danger that we may find something damaging to our personal fortunes, our professional reputation, our pride, and what the Japanese call "face." Do we really dare to recommend careful and thorough studies of the effectiveness of screening audiometry, of our current methods for selecting hearing aids, of the reliability of clinical audiometry, of the effectiveness of auditory training and of the potential value of extra-aural channels

of communication for the deaf? Such studies are difficult, expensive and time consuming. They must be planned and conducted by experts.

Our present problem is to judge from our personal experiences and intuitions where such studies are likely to pay off by showing that things are significantly different from what most people now believe.

Consider our definition of impairment of hearing. As audiologists we can measure hearing, but our measurements alone are not enough to define the degree of impairment. The concept of handicap comes from outside of audiometry. It represents a relation of measured auditory thresholds to something else. That something else lies in our general everyday experience, in our social customs and point of view, and in what we accept as "self-evident truths."

Perhaps there is a "research need" to carry through a validation of the particular estimate which was made honestly and carefully, but nevertheless somewhat arbitrarily, by a small group of individuals. Were the right frequencies chosen? Is the hearing level of 16 decibels correct? Here is an example of a really difficult but perhaps very important piece of validation. We can feel quite confident in the general concept of impairment and even of a scale of impairment, but the exact numbers are at present arbitrary. Nevertheless, these numbers will influence significantly our estimate of how many individuals come within the scope of programs of conservation, care and rehabilitation of hearing, and this estimate will in turn define the magnitude and national importance of our problem.

HEARING CONSERVATION PAST AND FUTURE

ARAM GLORIG, M.D.

This keynote address touches on many problems stemming from discrepancies in semantics, recording, testing equipment and conditions, procedures and personnel. The speaker refines and extrapolates data to indicate something of the extent and cost of hearing impairment. He raises questions on current programs, and outlines the individual and collective objectives of the four work groups. Dr. Glorig is Director of Research of the Sub-committee on Noise of the AAOO Committee on Conservation of Hearing.

Hearing is one of the most important of our special senses, for without hearing, speech is all but impossible, and without speech, society could not exist. It is around activities that depend primarily on our sense of hearing that our whole lives are largely built. Yet hearing is probably the most neglected of our senses. This conference will have been a success if it does nothing more than impress each one of us with the importance of human hearing and make us fully realize how much *more* we do to conserve it.

The purpose of this meeting in terms of its broad structure may be outlined as follows:

1. *Case Finding*: To evaluate, improve, coordinate, and standardize case finding methods.
2. *Medical Care*: To assess present methods of caring for the patient with impaired hearing and to make recommendations for improving these methods and increasing their use.
3. *Habilitation and Rehabilitation*: To promote better use of our present methods of habilitation and rehabilitation and to increase our knowledge of techniques through experience. To use this increased knowledge to provide still better methods.
4. *Training and Research*: To encourage more and better training of medical and paramedical personnel and to suggest areas of research, particularly applied research.
5. And finally, *Coordination of Activities*: To suggest how, when, and where Federal and State health agencies might assist nongovernmental agencies in each of the four areas mentioned above.

To my knowledge, no previous attempt has been made to organize and coordinate the over-all activities of groups concerned with impaired hearing. Today, in this room, we are making otological and audiological history.

THE PROBLEM

What is the magnitude of the problem that faces us? How much impaired hearing is there in our population? What is its cost? No one really knows. Our literature contains various estimates of significant hearing loss that range from 1 to 10 per cent of the total population. Reports from school surveys claim that 3 to 7 per cent of the children tested show significant hearing loss. Fair surveys report that as high as 16 per cent of the participants have significant hearing loss. Why, then, do we not know how much impaired hearing there is in our population?

One reason is loose terminology and confusion of terms. Trying to match the meanings of terms used in the various published reports on hearing in

the general population puts one in mind of Humpty Dumpty—

> "When *I* use a word," Humpty Dumpty said, in a rather scornful tone, "it means just what I choose it to mean—neither more nor less."
>
> "The question is," said Alice, "whether you can make words mean so many different things."
>
> "The question is," said Humpty Dumpty, "which is to be master—that's all."

The Humpty Dumptys of audition have used "hearing loss" and "significant hearing loss" interchangeably to designate any deviation of 5 to 30 decibels from the zero setting on the attenuator dial. With such a range of interpretations, no wonder the estimates of hearing loss in the general population vary widely. To prevent such semantic confusion in *our* reports, Dr. Hallowell Davis agreed to discuss the definitions of terms to be used at this conference.

Other difficulties lie in the availability and reliability of information. When we search the published reports of hearing surveys, we sometimes find the information we want is not available—or the available information is not reliable. For example, hearing loss in the general population is thought to be a function of age. Yet the precise ages of participants were obtained in only one general population hearing survey—the Wisconsin State Fair Hearing Survey. Often the age decade only is recorded. In some surveys, age has been estimated by an attendant (and only two thirds of a control group seen by one attendant were placed even in the proper age decade).

So much for the supplementary data. How do the hearing levels themselves as reported from these surveys compare? Unfortunately median thresholds of supposedly comparable age and sex groups differ by as much as 10 decibels at one or more frequencies.

Is there any way of treating these incongruous data to obtain anything like a reliable estimate of the amount of impaired hearing in the general population? We believe there is. The staff of our Research Center devotes much time to statistical analyses of tens of thousands of audiograms in an attempt to determine the status of hearing in industrial and nonindustrial populations. We now know that we are not justified in directly comparing the median thresholds of different samples unless we are certain that testing environments were acoustically the same; that audiometers were properly calibrated, frequently checked and properly cared for; and that testing techniques were consistent and identical. In other words, we are limited in direct comparisons of median data, to data that we ourselves have collected. Even then things are not rosy.

In a recent survey conducted by the Research Center Staff, we found significant differences of the order of 10 decibels between median thresholds of two similar groups tested with the same technique, in the same environment, but on different audiometers. The acoustic outputs of the audiometers were within 2 or 3 decibels of each other when checked with an artificial ear. Apparently the source of the discrepancy was in the pattern of the radiated sound from two different types of earphone on the two audiometers.

It has been our general experience, however, that the shapes of distributions of hearing loss in groups of persons under 20 years of age are almost identical from sample to sample. This obtains whether the source is an industrial or general population. Because of this high degree of agreement in shapes of distributions between samples, we assume that the absolute differences we have found to exist between median

TABLE 1.

HEARING LOSS AMONG MALES IN THE UNITED STATES WHO ARE 10 TO 59 YEARS OF AGE

GROUP AGE	SIZE OF SAMPLE	MALES WITH HEARING LEVEL OF 15 DB OR MORE AT 1000 C/S		MALES WITH HEARING LEVEL OF 30 DB OR MORE AT 1000 C/S		CONFIDENCE LIMITS OF 99.7%
		OF SURVEY TESTED	NUMBER IN U. S. POPULATION (EXTRAPOLATED)	OF SURVEY TESTED	NUMBER IN U. S. POPULATION (EXTRAPOLATED)	
10-19	6,204	3%*	400,000*	1%*	100,000*	± 2%
20-29	8,542	3%	300,000	1%	100,000	± 2%
30-39	7,000	6%	700,000	1.5%	200,000	± 2%
40-49	6,836	12%	1,300,000	3%	300,000	± 2%
50-59	2,867	21%	1,700,000	4%	330,000	± 3%
10-59	31,449	About 4,400,000†		About 1,030,000†		

* Percentage and extrapolated figures are rounded

† Out of 54,000,000 (U. S. 1955 Census)

audiograms are artifacts of the measuring process and do not represent real differences in the status of hearing.

Our present procedure is to assume that subjects under 20 years of age have normal hearing on the average and to use the median threshold of their ears as the reference level for reporting median thresholds of other age groups. Such an "adjustment" to the median audiogram is statistically proper if sample-to-sample differences in this youngest group vary within the range of the standard error of the mean of the population, that is, within the parameter estimate of the mean hearing loss.

We feel justified in assuming that these young ears have not been exposed to noise long enough to have acquired noise-induced hearing loss and, further, that no significant difference in pathology exists between samples of young persons. If these assumptions are valid, as they seem to be, then no significant difference exists on the average in the youngest ears in the various samples. Reported differences must be due to variations in equipment, testing technique, masking at the lower frequencies or some other factor.

In comparing adjusted median thresholds in several separate samples of the population we find that cumulative distributions of hearing loss agree rather well. At 1000 c/s the spread of hearing loss between medians for several groups of 20-to-29-year-olds is only two decibels. The largest spread between medians for any age group is six decibels, and this occurs, as might be expected, in an older age group, the 50-to-59-year-olds.

A summary of our analyses of survey data, both industrial and general, is given in figure 1. The table shows the percentages of males tested in various surveys who have hearing levels at 1000 c/s of 15 decibels or more and,

also at 1000 c/s levels, of 30 decibels or more. Percentages are given for the five decade age groups between 10 and 60 years. For our purposes we consider a hearing level of 15 decibels the upper limit of average normal hearing and one of 30 decibels a very significant hearing loss. The percentages listed are averages from several separate cumulative distributions of hearing loss. These averages represent audiograms from general population surveys and from industrial pre-employment hearing tests made in many different plants in widely scattered locations in the United States.

In the 10-to-19-year age group, 3 per cent of the males tested in the surveys had a hearing level of 15 decibels or more and only 1 per cent had a hearing level of 30 decibels or more. In the 50-to-59 age group, however, 21 per cent had a hearing level of 15 decibels or more and 4 per cent had a hearing level of 30 decibels or more. Remember that these figures are for thresholds at 1000 c/s only.

Next we extrapolate from these data to the possible amount of hearing loss to be found in males in the total population. Using the 1955 census figures, we estimate that approximately 4,400,000 males between the ages of 10 and 59 have hearing levels of 15 decibels or more at 1000 c/s, and of these approximately 1,030,000 have a very significant loss—a hearing level of 30 decibels or more. These figures would be tremendously larger if we could add males over 59 and all females over 10 years of age who have hearing impairments. The magnitude of the problem is self evident.

Are we justified in making this extrapolation for males? Statistically, yes. The sample sizes used in our survey data are large enough to place our results within the 2 per cent confidence limit in all but one age group—the 50-to-59-year-olds—where the results are within 3 per cent confidence limits.

The accumulated evidence strongly supports our contention that this is a reasonably close first estimate of the amount of hearing loss that exists in the general population. May I repeat: approximately 4,400,000 males between the ages of 10 and 59 have a hearing level of 15 decibels or more at 1000 c/s and, of these, approximately one fifth, or 1,030,000, have a hearing level of 30 decibels or more at 1000 c/s. Hearing loss in the general population is a serious health problem.

COST

What are the costs of hearing loss and hearing conservation? Again, we have no over-all figures but we can extrapolate some from the costs borne by such special groups as the military, industry, and schools for the deaf.

Compensation for hearing loss incurred in military service amounts to tens of millions of dollars. The current annual cost to the Veterans Administration for service-incurred hearing loss is $42 million. And this is for compensation payments only. To it must be added the cost of hearing aids and their upkeep.

What about the potential cost of hearing loss to industry? Referring to figure 1 again, we see that there are 1,700,000 50-to-59-year-old males with hearing levels of 15 decibels or more at 1000 c/s. Perhaps 10 per cent of these males are eligible to file claims for workmen's compensation. Under the provisions of laws like the Wisconsin law, if the average claim amounts to about $1000, the total cost would be $170 million in this age group alone—a fraction of the total population.

What is the potential cost of conservation? There are about 54 million men of employable age in the United States. Perhaps one million employees have their hearing tested annually at a cost to industry of about $3 each. This estimate includes the cost of lost production time as well as the actual cost of administering the test. The annual cost to test only 2 per cent of the working population amounts to $3 million. If, in addition, all employees were tested before hiring, as is recommended by the medical profession, the annual bill would be increased by about $18 million.

A very important part of hearing conservation in the general population is the school hearing-testing program. Individual tests in these programs cost on the average $0.75. The 1955 census reports about 40 million between the ages of 5 and 19. When only 10 per cent of these children are tested each year, the annual cost is $3 million. If all school children were tested every three years, it would amount to 13 million tests a year at an annual cost of $10 million.

Add the costs of rehabilitation centers, of public school special education programs, of maintaining 190 day schools and 72 residential schools for the deaf from public funds and 44 others from private funds; add further the cost of both basic research and applied research in hearing, and we see that the cost of hearing loss and its prevention comes high. It is reasonable, then, to make a highly critical examination of our present programs with a view to improving them and to designing more effective programs in the future.

EFFECTIVENESS OF PROGRAMS

It is high time that otologists and audiologists took a close look at their work. How reliable are school audiometry and industrial audiometry? Few, if any, school programs have acceptable testing environments. Analysis of test results from six schools in a large city showed failure rates varying from 1 to 10 per cent; but further studies showed the rates were more a function of testing conditions than of the children's hearing.

Environment is not the only problem. What about the general reliability of audiometry under nonlaboratory conditions? Analyses of serial audiograms shatter the myth that thresholds at any frequency are reproduced within plus or minus 5 decibels on repeat tests; that is, that all measured values of the threshold at a given frequency are repeated within a range of 10 decibels. We have checked several sets of serial audiograms from three industrial samples and from a group of selected hospital patients who were tested once a week to detect any changes in hearing caused by drugs administered for therapeutic reasons. Considering all frequencies, the hospital group showed the least variability, probably because all tests were made by the same technician using the same audiometer which was kept in calibration. Even so, as many as 40 per cent of the patients in this group showed variability of greater than 10 decibels between successive audiograms. In the industrial samples as many as 85 per cent of the persons tested showed variability greater than 10 decibels at 4000 c/s. Certainly these analyses do not support the claim that audiometry is "good" to plus or minus 5 decibels.

In some sets of serial audiograms taken in industrial plants, standard deviations of changes in thresholds between successive tests are excessively high. The environments in these plants may be a bit noisy, but we know that the technicians are conscientious and

that the audiometers are sent in for yearly calibration. We know that a sincere attempt is made to do a proper job. In spite of these sincere attempts to make reliable tests, standard deviations as large as 13 decibels are not uncommon. This standard deviation of 13 decibels means that one third of the changes between successive audiograms are *larger* than plus or minus 13 decibels; and this when in fact there has been no real change in the permanent status of hearing.

What are the causes of variability in serial audiograms? There are three potential sources: the technician, the equipment, and the subject himself.

We are well aware that differences in technique result in different estimates of the threshold, but how reliable are repeat tests when the same technique is used consistently? We have a measure of reliability from the Wisconsin State Fair Hearing Survey. Standard deviations of differences between median thresholds of the groups tested by each of 19 testers were only 2.32 decibels at 1000 c/s and 2.20 decibels at 4000 c/s. Although these tests were made under pressure and under survey conditions, the standard deviations compare favorably with those of data taken under laboratory conditions. Unfortunately this high degree of consistency between testers is rarely found.

What about reliability of equipment? Headbands, earphones, cords, attenuators, interrupter switches, amplifiers, and other components tested in the field are found to be defective more often than we would ever have expected. The audiometer appears not to be the rugged reliable instrument it is generally considered to be.

Variability due to the subject himself is probably about the same as the standard deviation of auditory thresholds measured in the laboratory. That is, about 2.5 decibels on the average with occasional deviations larger than 10 decibels. Among possible causes of this occasionally large deviation are inattention, fatigue, temporary threshold shift and tinnitus.

A great deal of what we subsequently do depends on the results of the testing programs. Is it unreasonable, then, to ask the profession to examine critically the reliability of audiometry?

What about the suitability of test material? Since 1945 we have evaluated hearing with pure tones, spondees, and phonetically balanced word lists. But how much have we learned about the social and occupational handicap produced by hearing loss? What do we know, for example, about the effects of hearing loss on automobile driving? What do surgeons know about estimating the reduction in handicap produced by surgical rehabilitation?

For many years also we have "fitted" hearing aids by some sort of mumbo-jumbo evaluation; but what do we really know about the performance of these devices under everyday conditions?

We have taught speech reading for many decades. What do we know about speech reading? We cannot even agree among ouselves whether it is a skill or an art. We have no precise tests for the improvement obtained by regular instruction in speech reading. Similarly we have taught auditory training for years, yet we cannot measure the effectiveness even of intensive auditory training.

Need I continue to point out that we must make a thorough examination of many of our present procedures? We can no longer continue to operate on the assumption that use has proved the

worth of these procedures, that there is no need to test their efficacy.

Educators of the deaf are not entirely lily white, either. Consider the criteria for admitting students to schools for the deaf. Several years ago a survey questionnaire revealed that no uniform acceptable criteria were in general acceptance. Hearing tests of students in one of the foremost schools for the deaf showed that more than half of the children had sufficient residual hearing to get good results from the use of a hearing aid. I am sure the same situation obtains in other schools. I am equally sure that it is not intentional but is the result of poor admission criteria.

As chairman of this conference I would like to offer suggestions for your consideration in the working sessions that will deal with some of these difficulties.

CASE FINDING

Prevention is a particularly important part of hearing conservation. Prevention of loss of normal hearing and prevention of loss of residual hearing are equally important. Either means case finding. Early case finding is most important to the success of eventual conservation. Here, early may mean at a very young age. Four different age groups lend themselves to good programs of early case finding: children of preschool age, children of school age, adults of military age, and adults employed in industry.

It is with children of preschool age that early case finding pays off in the highest degree. Unfortunately, at this age it is difficult to test hearing. In my opinion, however, knowledge of even the approximate condition of a preschool child's hearing is valuable enough to justify the effort required to obtain it. This conference could do a great service to the children of our communities by publishing acceptable methods for testing preschool children and by suggesting avenues of research through which better tests for these youngsters can be developed.

The hearing of preschool children is the most neglected of any of the four groups. Because of the difficulty of determining the child's status of hearing, he may be set aside without referral to centers equipped to test him until, as the examiner frequently says, he is "old enough to be tested." By this time it is too late to make full use of his residual hearing.

Pediatricians and general practitioners in particular must be made aware of methods for determining the existence of impaired hearing in the preschool child. It is not necessary for the physicians to make a thorough check of the hearing, but only to determine with reasonable accuracy whether or not a hearing loss exists. If hearing loss is suspected, the child can then be referred to a center where proper and thorough tests can be administered. As a result of these tests a program of training and therapy can be instituted to give a child the best use of the hearing he has or can have.

Standard hearing tests are an accepted technique for evaluating the status of hearing in the other three groups. Members of these groups are at one time or another in a situation that makes testing reasonable and easy.

At no other time in an individual's life is it so easy to control his movements, at least for a portion of the day, as during school age. School testing programs are carried out in many communities throughout the United States, but there is much confusion about what methods of testing are to be used. Because of wide differences in techniques,

test results are not comparable and there is a consequent waste of time and money. Recommendations by a national conference of this kind for improvement and standardization of testing techniques and environments should go a long way toward providing the necessary impetus for a critical evaluation of current school testing programs and for the initiation of such programs in areas where they do not now exist.

Many children finish school without having had a hearing test. If they go on into one of the military services or into industry, they may again have an opportunity to be tested. The Air Force, the Army and the Navy are now providing good testing facilities, and within a few years every man who enters the military service will be given a pure tone threshold hearing test.

Industrial tests are not as widespread. The AAOO has recommended for the past 10 years that pre-employment audiograms be made for industrial employees. Some companies have had hearing conservation programs in operation for more years than that. But only a small fraction of industry as a whole provides hearing tests for employees. A word of encouragement from this conference and some suggestions about techniques, instrumentation and standards would help to increase the number of active industrial hearing-conservation programs.

To improve our case finding we need answers to such questions as these: How can persons of all ages be screened earlier and oftener so that hearing defects which might otherwise persist undetected for years may be discovered and proper referral made? How can persons or agencies not now concerned with auditory screening be mobilized to assist private physicians and others who are? What can State and local health departments do? What more can labor and industry do? What can government agencies, Federal, State, and local, do for their own employees? Who can best do the methodological experimentation necessary to work out effective and economical methods of early case finding? How can the private practitioner be motivated to take an interest in hearing conservation?

The question is often asked, "Why urge case finding if the facilities for referral are inadequate?" The answer is that before facilities will become available the demand for their use must be created. I do believe the latent demand exists and will become evident as good case-finding programs increase. In the early days of the Veterans Administration audiology program it was my job to set up some eight or ten audiology and speech correction centers in various parts of the country to care for disabled veterans. I often asked myself, "Will there be enough patients to use all of these centers? Are we overbuilding, overstaffing, and will the Veterans Administration be criticized for initiating a program for which there was no real need?" My estimate of the magnitude of the problem, based on case-finding programs in the military services, was correct, however. As a matter of fact, not only the original centers but several later additions as well are now so busy that they cannot handle all the referrals. This obtains in spite of the development of many university centers with Veterans Administration contracts.

The demand for good nongovernmental evaluation centers is becoming evident, and in my opinion these centers will soon begin to appear. One of the purposes of this national conference is to develop criteria for semi-automatic referral to such centers—to centers where proper otological and audiological advice can be obtained.

MEDICAL CARE AND REHABILITATION

Case finding leads to medical care and medical care leads to rehabilitation. The purpose of rehabilitation is to effect partial restoration of functional hearing, restoration beyond that which can be supplied by surgical or other direct medical means.

Not that rehabilitation is not a medical function. Far from it. And I do believe the medical profession has been derelict in this respect.

We have realized only very recently that after surgical and medical care, the job of teaching the patient to make use of what he has still remains. An important function of the group on rehabilitation will be to coordinate efforts of rehabilitation and of habilitation. Where does one start and the other end? How can the audiologist, who is primarily concerned with rehabilitation, be used to assist the educator who is primarily concerned with habilitation? How can medical and paramedical professional workers assist teachers of the deaf and impaired hearing persons, and vice versa?

One of the most important problems we face in rehabilitation is how to effect placement of children with impaired hearing in schools for so-called normal-hearing children. At many schools, children who have been successfully rehabilitated with a prosthetic device are treated as though they were still deaf and are not allowed to enter into normal public school functions. This conference could do these children a great service by recommending criteria for determining which rehabilitated children should be allowed to enter public school training programs. Admittedly, the impaired-hearing child who has been rehabilitated is limited to a certain degree. But is he any worse off than the child who has difficulty learning or the child who does not apply himself? Are not these children at least as much of a problem to the public school teacher as a properly rehabilitated child with impaired hearing? Why should there be discrimination against the child who wears a hearing aid?

TRAINING AND RESEARCH

Proper programs of case finding, care of the impaired-hearing patient and rehabilitation cannot be provided without the information that comes from research and without the proper training of personnel to conduct such programs. Basic research in audiology and otology is currently being carried on at several different centers in the United States. Financial support for it is supplied in part by the National Institutes of Health. Applied research, however, also needs assistance. Some projects are supported by the Office of Vocational Rehabilitation but by and large our over-all program of applied research is disorganized and poorly financed. This group would do well to point out ways and means of conducting and organizing an applied research program.

Efforts are being made to improve the training of audiological personnel in many institutions, but we have a long way to go. The need is great for properly trained special-education teachers in the public schools, particularly teachers for children with impaired hearing. Current medical training in otology is far from satisfactory as a whole. The American Speech and Hearing Association has outlined requirements for basic and advanced training programs in audiology, but no group has come forth with specific recommendations for training special-education teachers in public schools or for specific improvement of otological training.

Included in this conference membership are men and women who are familiar with techniques for teaching the deaf. In cooperation with your conference colleagues you should be able to develop standards for education of teachers of the deaf, standards that are current and that incorporate modern teaching methods.

Time does not permit me to exhaust the list of possible recommendations to the working groups. These are but some of the problems we are met here to solve. With a great deal of insight Dr. A. L. Chapman has succinctly summarized the goals of this meeting:

1. To bring into focus the size and nature of the impaired hearing problem.

2. To prescribe activities that could be engaged in which would improve services that are now being rendered in the areas of case finding, care, rehabilitation, research and training.

3. To point out new personnel and fiscal resources that might be mobilized to expand and improve the services rendered those with impaired hearing (specifically local, State and Federal health agencies).

4. To designate areas of productive research and types of training.

5. To produce a document that could be used in promoting the development of the expanded hearing conservation activities.

6. To help hearing conservation compete with such headline getters as "Radiation," "The Aging," "Cancer" and "Poliomyelitis."

REPORTS AND RECOMMENDATIONS

Group A

EARLY CASE FINDING (DETECTION)

Chairman

PETER N. PASTORE, M.D.

Recorder

DR. EARL SCHUBERT

Key Members

MR. JAMES CUTLER
MEYER S. FOX, M.D.
RICHARD E. MARCUS, M.D.
MR. DANIEL SULLIVAN

What do we mean by early case-finding? Early in life? Or early in an impairment so there will be a minimal loss throughout life?

What age groups are best suited to early case finding? Why is it important? How can we best find persons with hearing impairment, and what should be done with them? What methods of referral are successful today? What follow-up methods? What methods should we recommend?

Finally, who is responsible for all this—who is going to get the job done?—from the group chairman's opening remarks.

REPORT AND RECOMMENDATIONS

I. *Importance of Early Discovery*

Any complete hearing conservation program must include the *earliest practicable discovery of hearing impairment at all ages* and provide for such referrals as will ensure proper preventive, curative or rehabilitative measures. The importance of early discovery can scarcely be overstressed. It may mean:

Possible improvement or arrest of a progressive hearing loss.

Maximum early use of residual hearing for speech development.

Alleviation of emotional and social problems.

Early use of specific rehabilitative measures.

Accurate school placement as soon as feasible.

Help for parents and other family members before problems develop.

Vocational rehabilitation where applicable.

II. *Consideration by Age Groups*

Problems and methods of early discovery can well be discussed by age groups although some factors are common to several or all ages.

A. *For the preschool age groups,* the usual testing procedures are not precise enough, but careful otological evaluation and observation of the child's behavior will yield useful information. Therefore, parents, family physicians, pediatricians and other medical or paramedical personnel entrusted with the care of children should be made acutely aware of how important it is to recognize any hearing loss promptly. The conference recommends:

1. That parents be taught to recognize any behavior of infants and preschool children that indicates hearing loss. This might be done through PTA groups, through publicity released by national organizations, or through any other suitable medium.

2. That nursery school teachers be taught to recognize the behavioral symptoms of hearing loss and to be conversant with referral procedures.

B. *In the school-age group,* the first problem appears to be how frequently the population should be screened for hearing loss. Frequent testing is admittedly desirable, but current practice is a compromise between the economic and the ideal. As more efficient screening methods are devoloped, the interval between tests might be shortened.

Current screening methods vary widely. They need to be critically evaluated and standardized. A good screening test must discover all existing impairments, but it must not create false alarms or unduly burden follow-up personnel.

A second problem is an adequate channel of referral. Whenever a hearing loss is discovered by testing but not channeled through to complete diagnosis and the needed therapy, early discovery loses its efficacy. In various localities such groups as County and State medical societies, school and public health authorities, local and State ear, nose and throat societies, individual otologists or hearing and speech centers have been of great help in this respect. The conference recommends:

1. That a special study committee be established for critical evaluation and standardization of the various screening methods.

2. That this matter be brought to the attention of the appropriate national organization.

3. That whenever hearing impairment is suspected, the first step be a medical referral for complete otological examination and audiological evaluation.

C. *The* 18-65 *age group* is found largely in schools, colleges, residential institutions, business, industry, agriculture, the professions, the Armed Services, and in the household population. The conference recommends:

1. That early detection be increased by emphasizing hearing tests in pre-employment, pre-entrance and induction examinations and in periodic medical rechecks.

2. That every such hearing test include a pure-tone air-conduction audiogram and such other procedures as are indicated.

3. That periodic preventive rechecks be made in high school, college and other groups—especially of those persons who are exposed to hazardous noise, ototoxic drugs, infection or other agents which might produce hearing loss.

D. *The over-*65 *age group* is a large and growing part of our population, peculiarly prone to hearing impairment. Making services available to this group becomes more difficult for a number of reasons:

Widespread low income or dependency.

Conditions that make hearing tests more time-consuming.

A certain indifference in both those affected and those concerned with care of this group.

Much misapprehension and misinformation concerning communication problems in this group.

The above considerations argue that methods used in other age groups will not adequately serve the over-65 population. The conference recommends:

1. That detection of hearing impairments in this group be emphasized.

2. That all medical examinations for retirement, for admission to convalescent homes, or the like, include pure-tone air-conduction audiograms and such other hearing tests as are indicated.

3. That the whole question of early-detection techniques for this group be further explored.

III. *Responsibility*

A vital thread running through all age groups in the process of early detection is the assigning of responsibility. It is difficult to outline a standard pattern to fit all situations. But the governing principle is that in each case *someone* must make certain that in any locale an adequate screening and follow-up program is set in motion. This may be local interested medical people, local public health personnel, school officials, school or industrial nurses, the local hearing society chapter, a hearing and speech center, private agencies, some civic-minded individual, or a local welfare agency.

But *someone* must supply the motivation for seeing that the early detection program is carried out regularly. In addition—whatever group or individual assumes responsibility—it is recommended that medical supervision be an integral part of the total program.

IV. *Summary of Recommendations*

1. That there be an increased systematic education of the public and of medical and paramedical personnel in the importance of normal hearing and the nature of hearing problems.

2. That there be medical supervision of, and participation in, early detection activities.

3. That a concentrated study be made of the possibility of standardizing screening tests, including the establishment of referral criteria.

4. That every complete physical examination include a pure-tone air-conduction audiogram.

5. That support be made available for collecting and disseminating information on current techniques in the hearing testing of the infant and preschool child.

6. That a pilot study in detection and management of hearing problems in individuals over 65 be undertaken *and assessed* before *full-scale* detection activities are initiated.

Group B
CARE OF PERSONS WITH IMPAIRED HEARING

Chairman

DEAN M. LIERLE, M.D.

Recorder

MRS. MARION P. DOWNS

Key Members

DR. MOE BERGMAN
DR. SCOTT REGER
DR. ROBERT E. ROACH
DR. FREEMAN MCCONNELL

What is meant by care?

How can we guarantee that cases will be referred to the proper persons?

What are minimum standards for examinations? Can we specify adequately trained medical personnel to make the medical examinations? Can we specify adequately trained testing personnel? Can we specify minimum standards for testing facilities and equipment?

Can we specify minimum test requirements for hearing aid evaluation?

Can we specify standards for counseling and educating parents? How can we ensure referral in this area? Who shall give the counseling?

How can needy persons get the necessary evaluation and testing when a hearing aid is recommended?

Shall periodic medical and audiologic rechecks be recommended? How can they be implemented?—from the group chairman's opening remarks.

REPORT AND RECOMMENDATIONS

I. *Initiating Care*

A. The care of persons with impaired hearing should begin with a medical and otolaryngologic examination rather than with a nonmedical or a commercial service. Care should also include proper recommendation and referral to other services, where indicated, for such rehabilitation measures as counseling and guidance on the use of a hearing aid, lip reading, auditory training, speech training, special educational placement or procedures, and vocational guidance.

B. It is urged that school authorities and physicians, medical practitioners and other referral agencies refer people with hearing impairment who require otologic examination to otolaryngologists who are Board certified or have equivalent training. There are too few well-trained otorhinolaryngologists, and this situation should be corrected. If the otologist lacks proper equipment for complete audiologic service as defined below, he should refer to another facility that possesses it.

An eye examination is also essential to ensure good visual compensation in the case of a hearing loss.

II. *Audiologic Facilities*

A. The establishment of more and improved comprehensive speech, hearing and otology centers is urged. It is highly desirable that otologic and audiologic facilities be in the same location for maximum efficiency in referrals and

for intercommunication of professional staff. Where such facilities are far apart, provisions should be made for the otologist to make his examination in the audiologic center. Centers devoted to the hearing problem should also be devoted to all aspects of the oral communication process, with adequately qualified people in the related fields to provide over-all communication evaluation. Each center should be equipped to make a differential study of deficiency in speech and language development of both adults and children.

B. The following minimum standards are recommended for the audiologic facilities which will evaluate the rehabilitation needs:

1. Personnel for audiologic facilities should have the training and experience to meet the standards for certification by the American Speech and Hearing Association; to wit: basic hearing certification for the supervised personnel, advanced hearing certification for supervisory personnel.

2. Rooms for hearing tests should meet the specifications of the AAOO Guide on Conservation of Hearing in Noise or those of the American Standards Association (ASA), now in preparation.

3. Monaural pure tone air and bone conduction and speech audiometry with calibrated masking, as provided by ASA standards for diagnostic audiometers, should be available.

4. Facilities for loudspeaker testing of hearing for speech should be included. For audiology centers, adjacent sound-isolated testing rooms, with the appropriate equipment, are essential.

C. The hearing facility should be in a position to give expert counseling and guidance on the need for a hearing aid, its selection and the orientation and training requisite to its use. Additional rehabilitation measures such as lip reading, auditory training, speech training, and psychological counseling should be available.

D. Particularly where public funds are used for hearing aids, it should be the responsibility of the otologist to see that the beneficiaries obtain complete audiologic evaluation in a proper facility, guidance in the selection and use of a hearing aid, and a suggested program for rehabilitation.

E. If the patient and his family are in need of services such as psychological, psychiatric, or health-welfare agencies provide, they should be referred to the appropriate agencies, and where other types of services are needed, to the appropriate community services.

III. *Provisions for Medically Indigent and Needy Cases*

A. Many people are eligible for medical or rehabilitative assistance but are not receiving proper care because of lack of information. It is recommended that information about services provided by Federal, State, and local agencies be widely disseminated through an increased U. S. Public Health Service and Office of Vocational Rehabilitation information program.

B. Additional funds should be provided to make adequate services available to others, especially children and aged persons, who are not presently eligible for them and are unable to meet the costs themselves. We recommend reliance for the appropriate services on a local or State level when available.

When this is not feasible, it is recommended that the U. S. Public Health Service provide leadership to meet these needs and assume responsibility.

IV. *Provisions for Follow-up*

A. Cases of known hearing impairment should have periodic otologic and audiologic rechecks.

B. The centers themselves should be responsible for carrying out the follow-up program, either at the center or, when distances are involved, through the appropriate local agency or individual.

C. Periodic checkups and follow-ups are not adequate at present, and it is urged that there be more coordination between hearing centers, otologists, and other agencies involved in the care. We strongly urge that all groups in the community which have an interest in hearing conservation (including representatives of such State and Federal agencies as the Division of Crippled Children, Maternal and Child Health, and Bureau of Vocational Rehabilitation) make an effort to meet together periodically and coordinate their activities.

V. *Prevention*

A. Pertinent information should be disseminated by the appropriate Federal, State and local health agencies, and by societies and professionally qualified individuals, to parents, physicians, educators and other professional workers, on the problems of hearing impairment and its prevention. The information should include such items as:

1. The effects on hearing of infection, diseases, noise, RH factor, and such drugs as quinine, aspirin, streptomycin and other antibiotics as these pertain to the medical practitioner.

2. The cause, onset and manifestations of both acquired and congenital hearing impairment.

3. Educational, habilitative and rehabilitative needs in both partial and profound hearing impairment.

4. The nature of proper otologic and audiologic care, as suggested by this conference.

B. Implementation of the Information Program can be accomplished through:

1. Parent education groups.

2. Hearing conservation committees, which might be established on the model of this conference, at local, State and national levels.

3. Local service clubs, as stimulated by national institutes established for the purpose.

4. Such existing information programs as those of the American Hearing Society and other professional and lay groups. Expansion of these is to be encouraged.

C. It is urged that otologic societies establish continuous liaison with general practitioners, pediatricians and other professional groups to constantly disseminate information on hearing problems and conditions leading to hearing impairment.

VI. *Criteria for Educational Placement*

A. Criteria based on otologic, audiologic, psychologic and social evaluation should be established for the educational placement of children with hearing impairments.

B. Every child entering a school or program for the deaf should have proper physical, otologic, audiologic, psychologic and social evaluation before being admitted. Criteria for educational placement in special classes or integration into the regular school program should be based on similar evaluation.

VII. *Investigation of Dysacusics*

The problem of educational management of the dysacusic child (for example, the child with brain damage) is of particular concern to this conference, since children with these disorders are most often seen on a complaint of deafness. The management of this category of communication disorders is a subject for urgent study.

VIII. *Survey of Needs*

A. It is strongly recommended that the Division of Special Health Services of the U. S. Public Health Service make use of available consultant specialists to survey and evaluate existing facilities and to encourage the development of additional facilities where indicated. The selection of such consulting specialists could be made with the assistance of the American Academy of Ophthalmology and Otolaryngology and the American Speech and Hearing Association in otology, audiology or comparable groups in such related fields as psychology, psychiatry, social service and public health nursing.

B. Medical schools are urged to give more time to the training of medical students, general practitioners and pediatricians, in the problems of hearing. Recent findings indicate that a significant portion of the time of physicians will be spent on treatment of diseases of the ear, nose and throat.

C. In view of the demonstrated relationships between advancing age and deafness, it is recommended that special efforts be made to investigate the needs of the growing problem of the aged in respect to hearing.

D. We recommend that the appropriate Federal agencies encourage national, State and local agencies to establish much needed educational and rehabilitative facilities for those with hearing impairment in cities and local communities in those areas where such facilities do not exist at present. In addition there is a need for more nonresidential facilities for the deaf in local communities.

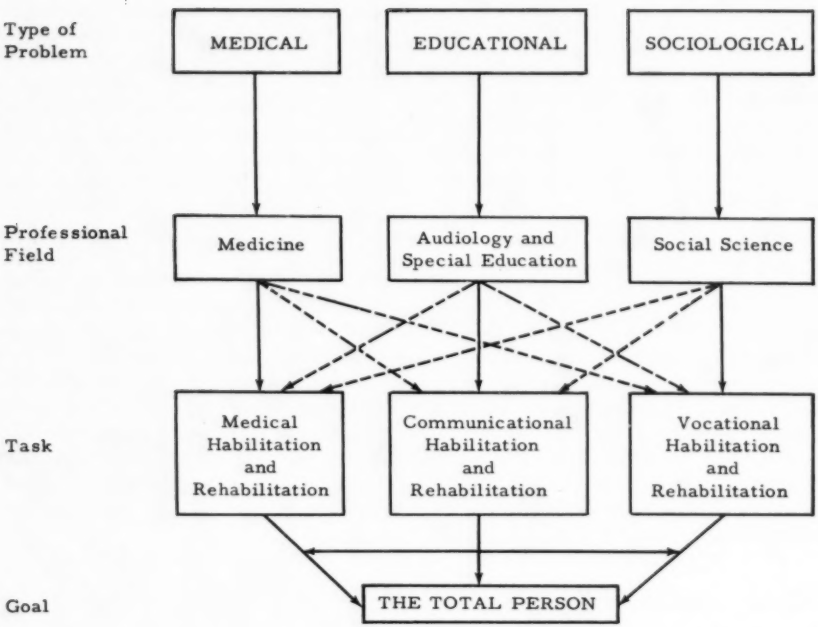
Type of Problem
MEDICAL
EDUCATIONAL
SOCIOLOGICAL
Professional Field
Medicine
Audiology and Special Education
Social Science
Task
Medical Habilitation and Rehabilitation
Communicational Habilitation and Rehabilitation
Vocational Habilitation and Rehabilitation
Goal
THE TOTAL PERSON

FIGURE 1.

Group C

HABILITATION AND REHABILITATION

Chairman

FRANCIS L. LEDERER, M.D.

Recorder

DR. RAYMOND CARHART

Key Members

DR. RICHARD SILVERMAN
NORTON CANFIELD, M.D.
DR. MIRIAM PAULS

Since care of the handicapped represents the level of our civilization, rehabilitation must take a man from where he is to where he wants to go. It should make him self-sustaining, educationally adequate and, perhaps, if we can achieve it, socially invincible.

We would like to offer for medicine, for audiology, for speech pathology and for social service such goals as would mean the restitution of the total person—from the chairman's opening remarks.

I. *A Frame of Reference*

Figure 1 emphasizes:

1. The three main groups of problems involved in the complete habilitation or rehabilitation of an individual.

2. The three professional fields concerned.

3. The major responsibilities of each.

4. The constant need for interaction and cooperation to achieve the goal.

Medicine must strive for physical habilitation and rehabilitation to assure the patient's full readiness for such educational and social help as we can give.

Audiology and the allied linguistic specialties must conduct the communicational habilitation and rehabilitation.

The psychological, social and vocational services must undertake the tasks of integrating the individual with his environment.

Each task is the major responsibility of one professional area. But each area must constantly cooperate, consult and interact with the others. *The habilitative tasks must be carefully integrated at all times.* The goal is to develop the total person to his maximum effectiveness in view of his personal configuration of limitations and potentials—physical, communicative and social.

II. *Some Major Problems*

What follows is a discussion of some of the problems involved. Some recommendations toward their solution are presented in Section III.

A. A major question that requires clarification is what professional person or group shall be responsible for primary management and control of the habilitation and rehabilitation program. The group recognizes that the physician must control the medical aspects, but it is divided on the best pattern for primary control of the other facets. All recognize that present patterns of responsibility vary from one situation and

locale to another. Among the variant causes are individual professional enthusiasms, differences in the availability of professional specialties, diversities in professional philosophy and in what the public feels and expects as it seeks help in hearing.

In many places, so little concerted attention is given to hearing problems that the assumption of primary responsibility is entirely a matter of chance. Here the first step in developing teamwork to cope with the habilitative needs of the hard-of-hearing must be the local establishment of appropriate professional services. It is also recognized that a particular pattern of primary management may logically vary with the age of a patient, the type and severity of his hearing problem and his individual needs.

Certainly the proper patterns of responsibility for primary management present no simple problem. But it is a problem that must be thoroughly studied and clarified with insight if the best interests of the individual are to be served.

B. A related question is how best to integrate the flow of services, both prerehabilitative and rehabilitative, so as to encourage the best interprofessional cooperation for serving most effectively the individual with impaired hearing.

C. Much more clarification of the relative complexities of rehabilitative tasks is needed. Some children and adults have easily handled difficulties. Others present disorders that require extensive and prolonged interprofessional attention. A discerning description and classification of the diverse habilitative and rehabilitative activities—one that sharply distinguishes the simple from the complex—is urgently needed.

D. We also face the disturbing problem of organizing fully effective programs for those whose handicaps are multiple as well as for those, like the aged, whose hearing impairments are at present imperfectly understood or improperly appreciated.

E. In short, a full analysis is demanded of scope, demand and proper procedure for a wide and complex variety of human needs. The planning of the ultimate in nationwide management of those with impaired hearing must rest on a realistic "job analysis" based on the nature of the human needs involved and the effectiveness of different procedures for coping with them. Such a job analysis should first avail itself of the information we already have. It can properly begin with a review of present practices and organizational patterns. In different locales different ways of handling similar problems have evolved and a thoughtful study of these different ways can be an important first step to understanding the diversity of the tasks ahead. Particularly, we must look for multiple solutions where multiple solutions will serve us best.

F. A major problem—the shortage of facilities and qualified personnel—has been stressed by another work group. It should be noted that these shortages greatly restrict the availability of habilitative services in many parts of the Nation.

G. The group also recognized that problems of financing programs for habilitation and rehabilitation are of prime importance and must be met realistically. The method will, of course, vary with the locale and the type of program.

H. The problem of establishing standards for programs in habilitation and rehabilitation is extremely complex. One aspect is the determination of appropriate requirements for centers and programs offering services. A second is the refinement of specifications for the services themselves. A third is the designation of the qualifications of the professional personnel. The group did not undertake to outline the mechanisms whereby standards can best be perfected and implemented.

I. The techniques of habilitation and rehabilitation need to be re-examined for improved effectiveness and enhanced benefits.

J. An allied problem not always appreciated is the need for a careful analysis and definition of habilitative and rehabilitative goals that are realistic for different types of individuals with different types of hearing impairment. We currently structure our goals subjectively and intuitively without any systemic empirical evidence that such goals are reasonable. We must realistically revise communicational goals, vocational goals, and social adjustment goals to the extent that a study of facts reveals need for such revision. In some instances we will undoubtedly adopt more demanding goals.

K. One pressing problem is to determine why it is often so difficult to get hard-of-hearing adults to undertake a rehabilitational program. Many of these individuals seem to be satisfied with their restrictions in interpersonal life. They seem to have lost interest in regaining their former auditory and personal efficiencies. Are we expecting too much where such persons are concerned? Or do they need special encouragement to kindle a desire for rehabilitation? Are they merely uninformed about what they can gain from available services? Whatever the reason, the fact remains that rehabilitation of adults with hearing impairment has lagged because many adults have been slow to accept it.

L. Insufficient attention has been given to a study of the psychological impact of hearing impairment and to the establishment of procedures for alleviating this impact. Some people do not seem to want to hear well again, others have made their hearing impairment a major personal tragedy, and so on. Even rehabilitation in some instances may have a psychological impact that evokes social problems in another area of an individual's life unless appropriately managed.

M. The final problem is that of informing the general public, persons with hearing difficulties, and the professional community of our Nation of the scope and potential of habilitation and rehabilitation for those with impaired hearing.

Our programs can never be fully effective so long as the general public rejects persons with hearing difficulties because it does not understand them and their problems.

Our programs can never be fully effective so long as these persons themselves do not appreciate the help which the programs offer them.

Our programs can never be fully effective so long as the total professional community is not alert enough to their existence to make proper referrals and to seek appropriate services.

Thus, the establishment of new and major channels for nationwide distri-

bution of information on hearing impairments and their management is a critical need.

III. *Recommendations*

The following recommendations emerged from the discussion of the problems outlined above:

1. Existing programs and systems for both habilitation and rehabilitation should be studied at length to assess the prevalence and effectiveness of the various patterns of responsibility for primary management which are now in use. It should be determined which patterns work best under what circumstances.

2. Strong efforts should be made to achieve full coordination of the complete array of habilitative and rehabilitative services in each locality. To assure continuity of services, all case-finding and preventive health services and educational programs, as well as those agencies immediately concerned with the treatment and rehabilitation of the hearing handicapped individual should be included. Such coordination can be most helpful if it embraces a relatively large geographic area like a state, or a relatively large population unit like a city.

3. The organization of local groups on hearing conservation composed of representatives from all service agencies and all service areas should be encouraged as a means of achieving fullest interprofessional understanding and cooperation.

4. Appropriate professional groups should be encouraged to prepare informative listings of all services for the hearing impaired which are locally available. Such information will encourage more adequate referrals and better utilization of facilities.

5. Surveys of existing programs in habilitation and rehabilitation should be undertaken to reveal both the elements of adequate service activities and the points of hiatus.

6. Careful study should be made of people who are the products of our present programs in habilitation and rehabilitation to discover the strengths and weaknesses of our past procedures.

7. Pilot studies should be undertaken to evaluate various habilitation, rehabilitation, and restorative procedures through a controlled comparison of methodologies. Pilot studies can help clarify the effectiveness of these procedures in vocational rehabilitation, in the management of communicative disorders and the like.

8. A strong program for distributing information on hearing and its problems is urgently recommended as an essential first step to improving the habilitation and rehabilitation accomplishments of the Nation. The general public and the total professional community must be knowledgeable in these areas if they are to take proper advantages of the services which are available. Among the specific steps which can be taken to publicize hearing problems are the following:

(a) To urge increased attention to problems of hearing

in the undergraduate medical curriculum, in all teacher training, in nursing education, in social service education, in postgraduate otologic training, and other programs of professional education.

(b) To conduct demonstration programs for the lay public and the community of professional workers.

(c) To prepare information booklets such as those prepared for other fields by the U. S. Public Health Service and the Office of Vocational Rehabilitation.

(d) To encourage the utilization of State and community resources in the area of habilitation to reduce the need for rehabilitation.

(e) To conduct wide public relations programs utilizing press, radio and television for educating the general public to accept the person with a hearing loss sympathetically and for helping those with such loss to take advantage of the hearing services available.

9. Attention must be given to ensuring the continuity of the professional task of serving those with impaired hearing. It is illogical to separate preventive from rehabilitative activities and, similarly, to separate these from the task of a long-term follow-up.

10. As a final recommendation, the dynamics of human behavior must be continuously studied, since these dynamics are critical in the successful habilitation or rehabilitation of the individual patient. The total program for each patient is one wherein medicine achieves for the individual his full physical capacity to benefit from educational and social management early enough so that such management can be truly effective. This total program is improved and its rewards increased as our understanding of the individual expands and as the professional team achieves a full cooperative attack on his problems.

Group D
TRAINING AND RESEARCH

Chairman
HALLOWELL DAVIS, M.D.

Recorder
DR. ROBERT FRISINA

Key Members
DR. POWRIE V. DOCTOR
MR. HELMER R. MYKLEBUST

More manpower is needed in our work, but there is no reserve pool of the kind we need. How, then, should the needed special personnel be trained? How can the trainees be found, selected and motivated? Just what are the jobs for which we wish to train them?

The tasks of audiologists, social workers, teachers of speech reading, vocational counselors, and teachers of handicapped children call not only for different training but also for different talents and interest.

A "rehabilitation center" in a major city may be able to employ a whole set of personnel, each trained for a special task, but in smaller communities some of the jobs may have to be combined if they are to be done at all.

What sort of careers can be offered to our prospective trainees? What opportunities are sufficient to warrant the undertaking of long and difficult training? Can we be realistic about the level of competence needed for the various tasks? It may be a mistake to set standards too high as well as too low. A man who is "too good" for a job that gives him no chance to grow and exercise his capacities to the fullest is not likely to stay in it.

Will our "professional workers" be truly professional? To what profession will they belong? What, for example, is an audiologist? What should he do? What does he actually do now? What does he really need to know? If we can answer these questions, we can more reasonably answer how he can be found and how he can be taught.

And how about the doctor—whether he be general practitioner, pediatrician or otologist? Is there perhaps a primary job of teaching and training to be done in our medical schools and hospitals?—from the group chairman's opening remarks. (Dr. Davis's remarks on research are given in an earlier paper.)

REPORT AND RECOMMENDATIONS

I. *Training*

A. The conference recognizes the fact that there is a shortage of competent persons trained in the problems created by impaired hearing. This shortage is evident in the following fields:

1. Physicians
   a. Otologists
   b. Pediatricians
   c. Obstetricians
   d. Industrial physicians

e. Gerontologists
f. General practitioners
g. Neurologists
h. Psychiatrists
i. Pathologists
2. Teachers
3. Audiologists
4. Speech Pathologists
5. Psychologists
6. Vocational Counselors
7. Social Workers
8. Nurses
9. Religious Workers

B. The conference is of the opinion that each of these professional groups has important contributions to make in the area of hearing impairments. It is recommended that minimum professional standards be encouraged in each profession as they relate to hearing impairment.

C. This conference recommends increased financial support of existing programs and the creation of additional programs of support for the training of all shortage-category personnel concerned with medical, audiologic, educational and research problems of hearing impairment.

II. *Research*

Research of great interest and importance to those concerned with the special problems of hearing impairment and its effects on the individual is in progress in many institutions. Many and diverse scientific disciplines are involved. Financial support for such basic research should be increased.

There are also special problems of hearing impairment itself and of the habilitation and rehabilitation that such impairment makes necessary. These special problems include those of prevention, identification, diagnosis, evaluation and medical care. They also include the special and difficult educational problems encountered in teaching those who are deaf.

Particularly important groups of special problems that are appropriate to clinical or classroom settings are the establishment of clear criteria of hearing impairment and the validation of these criteria. There is also the task of defining accurately the magnitude of the problems of hearing impairment. There should be a continued search for improvement of clinical and educational techniques and also studies of the actual effectiveness of the procedures that are employed. All such studies deserve increased financial support.

Free two-way communication should be established between investigators working in the basic scientific disciplines and those who deal directly with individuals whose hearing is impaired. The problems and the needs of the clinic and the classroom should be made known to the laboratory investigator and the results of basic research should be made available in readily intelligible form to those who may be able to apply them to the special problems of prevention, diagnosis, treatment, habilitation and rehabilitation.

CHAIRMAN'S SUMMARY OF THE CONFERENCE

You have heard your chairman describe the importance of hearing and the magnitude of the hearing conservation problem. You will remember the goals of the conference, but to refresh your memory—

1. To bring into focus the size and nature of the impaired hearing problem.
2. To prescribe activities that could be engaged in which would improve services that are now offered in all four areas of case finding, care, habilitation and rehabilitation and research training.
3. To point out new personnel and fiscal resources that might be mobilized to expand and improve the services available to those with impaired hearing (specifically local, state, and federal health agencies).
4. To designate areas of productive research and types of training.
5. To produce a document that could be used in promoting the development of the expanded hearing conservation activities.
6. To help hearing conservation compete with such headline getters as "Radiation," "The Aging," "Cancer," and "Poliomyelitis."

I think you will agree that the reports as you have just heard them have gone a long way toward satisfying the purposes of the conference. Dr. Davis gave you some definitions which you would do well to memorize and use. He told you of some trends for the future and some changes in familiar standards which may require a transition period of adjustment for most of us. He differentiated between basic research and clinical research. All of you might not agree with his ideas on this, but believe me, there is great merit in the principles implied by his differentiation. Too much time and money are wasted by poorly trained people who believe that research consists of performing a few prescribed procedures that result in numbers which can be used to support previously expressed opinions.

I would like to remind you of a statement by Dr. Davis which I think is one of the most important statements of the conference. I quote, "An important and everlasting problem for any service group is the continued questioning and testing of its own methods of procedure."

Dr. Waterhouse told you about a national health survey now in progress—you learned that each respondent will be given a threshold air conduction hearing test. The results of this survey will provide the first representative population sample we have had.

To me, one of the highlights of this conference was Dr. Doctor's talk on "Deafness in the Twentieth Century." I can truthfully say I've never heard a more moving speech on the problems of the deaf. I congratulate Dr. Doctor and urge you all to read and reread his paper.

Following this, your group chairmen outlined their ideas on the scope of the "working groups." Dr. Pastore's group on early case finding set as their goals:

1. To define early case finding.
2. To establish the importance of early case finding.
3. To consider methods of follow-up and referral.
4. To determine who is responsible for getting the job done.

The goals of Dr. Lierle's group on care of persons with impaired hearing were:

1. To define the scope of "care" of those with impaired hearing.
2. To bridge the gap between case finding and care.
3. To determine how proper evaluation, diagnosis and care can be guaranteed.
4. To consider how continued evaluation and care can be assured.

Dr. Lederer felt that his group should consider that "rehabilitation must take a man from where he is to where he wants to go. To make him self-sustaining and perhaps socially invincible (if possible) and educationally adequate." His group was:

1. To deal with auditory problems as they affect the person.
2. To divide rehabilitation into medical, educational and social areas.
3. To offer for medicine, audiology, and social service such goals as would mean the restitution of the total person.

Dr. Davis stated that research must be thought of as two kinds—basic and clinical. This conference is rightly oriented toward clinical research, and Group D will establish some of the needs of such research. They considered training and recruitment of personnel and thought that training must be oriented toward the job to be done. The following topics were outlined for consideration:

1. How can existing training programs be augmented to meet the varied needs?
2. What sort of careers can we offer our prospective trainees?
3. Can we be realistic about the level of competence necessary and adjust our training and recruitment accordingly?
4. Will our "professional workers" be truly professional and, if so, to what professional group will they belong?
5. How about the education of the medical profession as regards problems of hearing?

You heard the reports of the deliberations of each of the groups. You can judge for yourself how well each group has answered the questions posed by its chairman.

Let me attempt to summarize these work group reports.

Group A has provided you with a very thoughtful and complete justification for early case finding. They have neatly, and probably rightly, sidestepped recommending an accepted screening method for school children by recommending that a committee be set up to study this question. Group A was careful to point out that (1) screening results should be treated as just that and we should avoid alarming those involved before there is valid reason; (2) that parent and teacher education concerning the importance and meaning of hearing screening programs should be conducted; (3) that good screening programs should discover all cases without over-referral problems; (4) that special attention be paid to industrial and geriatric groups; (5) that attempts should be made to establish the responsibility for screening.

Group B has made specific recommendations which, in my opinion, are long overdue. Some of them are ambitious and even idealistic, but what group is better qualified to set goals that will eventually attain better care for the person with impaired hearing? Certainly compromises will be made under certain circumstances, but at least those of us who must compromise will know this and strive to reach the higher levels. Progress and advance depend on energetic people who at times may take the privilege of dreaming.

I would like to suggest a slight change in their final recommendations. In place of "encouraging national, state and local agencies to *establish* much needed educational and rehabilitative facilities for individuals with partial hearing loss," can we change this to recommend that national, state and local agencies be *encouraged* to assist presently existing facilities to expand or to assist non-governmental groups to establish facilities where none exist. There are many inadequate facilities that could be made adequate with the proper financial and professional help. There are many educational *institutions, centers,* and *hospitals* that should have and could have such facilities if financial assistance were available.

Members of *Group C* feel that their end goal is to develop the total person to his maximum effectiveness in view of his personal configuration of physical, communicational and social limitations and potentials.

Who shall take "primary responsibility" for the total task? The job is difficult to assign. Certain aspects of the job fall into certain specialties, but whether one discipline is able to and should assume responsibility for the entire process of habilitation and rehabilitation is a subject for further study to determine the solution that is in the best interest of the handicapped person.

Group C has realistically pointed out:

(1) that total rehabilitation is a complex and difficult task.

(2) that outlined goals will never be reached without complete interdisciplinary cooperation.

(3) that existing facilities should be evaluated and their existence made known to the public and to related professional groups.

Group D recognized that there is a shortage of personnel trained in the problems created by impaired hearing in the broad disciplines of Audiology, Education, Human Behavior, and Medicine. They have recommended increased

financial support of existing programs and creation of additional training programs for shortage category personnel.

They have recommended that research in special problems of hearing impairment itself, such as, prevention, identification, diagnosis, evaluation and medical, be supported! Significant is their recommendation that free two-way communication should be established between investigators working in basic research and in clinical research.

Finally, I would like to add that much of what is recognized and recommended in these reports has been mentioned before. We will all have to agree, however, that repetition with the force of added experience is very worthwhile.

I look to the near future and hope that soon more specific numbers and criteria can be provided. I am convinced that these numbers and criteria are not distant. We have outlined our goals clearly. Can we not look forward to routes with specific guideposts by which to reach these achievements soon?